From: "Brooks, Karl" </O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP

(FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=78AC91F4DB6D44F58424B504D5AA3C7D-BROOKS, KARL>

To: <u>Tapia</u>

Cecilia; Hammerschmidt

"Ron; Hague"

Mark;

CC:

Date: 1/13/2014 6:25:56 AM

Subject: Fw: WLL Area 1 Heating Event

Attachments: 40056510.pdf

40241235.pdf

Pls revw and draft response for my signature.

Tx

Property of the U.S EPA. If found please contact the EPA call center at 1-866-411-4EPA, Option 1.

From: Harvey Ferdman < Harvey Ferdman@aol.com>

Sent: Monday, January 13, 2014 12:18:15 AM

To: Brooks, Karl; Tappia.Cecilia@epa.gov; Hatch, Sarah

Cc: Bill.Otto@house.mo.gov; MOMcNeil,Margo; Christopher.Nagel@dnr.mo.gov; Shawn.Muenks@dnr.mo.gov; MATT LAVANCHY; Todd.Thalhamer@CalRecycle.ca.gov;

Kerry_DeGregorio@Blunt.Senate.gov; Joeana_Middleton@McCaskill.Senate.Gov; Douglas Clemens; 'Terrie Boguski'

Subject: WLL Area 1 Heating Event

Karl,

Thank you for your interest in the research our community has been doing regarding the West Lake and Bridgeton Landfills.

In our last conversation, you requested that I forward any information I was able to assemble regarding hazards of leaving PVC liners in the boring holes in Area 1 during the work that is scheduled to begin this week.

Please review the following.

Item 1: Boring showing elevated sub-surface temperature in Area 1.

Item 2: Email statement from a recognized landfill expert who has been consulting on the SSE in the Bridgeton Landfill in which he raises cautions about leaving the PVC liners in

place.

Item 3: Documented presence of petroleum soaked soils and possible "shock sensitive" materials in Area 1.

I continue to be concerned about the PVC pipes providing a possible oxygen paths in Area 1. I believe this information supports my concern. I look forward to your reply.

Item 1:

On the last state and local officials update conference call, you mentioned that a key reason you were OK with leaving the PVC pipes in place is because you were told that there have never been any high temperature readings in Area 1. I'm sorry this may contradict the information you were told and I hope you find the following data helpful. This is from pdf page 22 of the attached report 40056510.pdf. It shows a temperature of 140 degrees at 56 feet deep in Area 1 boring logs. According to our first responders who have been studying landfill fires and sub-surface events and their management, any reading over 131 degrees at depth is considered a possible sub-surface smolder event and merits further testing and monitoring. I have also inquired to our citizen researchers regarding their claim that there was a fire in the proximity of this well after the boring sample was taken that apparently reached the surface before being controlled by pouring a slurry into the area. I will forward documentation on that event as soon as I am able to confirm it. In the meantime, I hope you and your team find this information useful.

THE CONTRACTOR OF THE PARTY OF	Bori: og	ig \	14	M <u>claren</u> Hart		
	ing No. L-110	Project N		Page:		
Start/Finish Date 9/6/95	L-110	Site Name	07.0803035.003.002]2 of 2 Site Name and Location West Lake Landfill; Bridgeton, Missouri			
Drilling Contractor Drilling Service Com Driller Bruce Murphy	pany	Boring Lo	cation: arface Elevation:	Area 1 484.41 (Planned Boring 1068889.01 location, not 516645.03 surveyed)		
Drilling Equipment LDH-80T Drilling Ri	g, Large Di	0 100	McLaren/Hart Geologist/Office			
Bit Size/Type 24" OD, Solid Auger		Sample Method Grab from Augers	T.D. Borehole 56'	Well Installed? None Installed		
Remarks:						
Depth (ft) Sample 1D# Gelger	Reading (mR/br)		Description			
WL-110 Back	ground 2-0.04)	50.0-56.0' Native Alluvium: dark gray, clayey silt, moist, very warm.				
State 12500 mm 12500	ground	@ 56.0' sample h	ad a temperature of 140	9° F		

Item 2:

From: Todd Thalhamer

Date:01/09/2014 3:38 PM (GMT-06:00)

To: MATT LAVANCHY

Subject: RE: Fwd: WLL Trench Piping Issue

Matt,

Sorry for the delayed response, my kids gave me a nasty bug that I am now just coming out to see the world again.

While the methods the landfill are proposing are acceptable, you are correct with the potential outcome. These pipes can be direct conduits to an sse. I have seen these types of investigative methods add to problems over time. My questions are

- 1. Given the potential for an sse, would one want to you use steel piping?
- 2. Past maintenance issues have shown the If is unstable in areas, what type of seal is going to be place are the pipe and how will it be maintained.?
- 3. Will the piping be added to an weekly inspection list?
- 4. Will the piping be protected from equipment?
- 5. One has to maintain these pipes and ensure they don't become a pathway for oxygen.

Sent from my T-Mobile 4G LTE Device

----- Original message -----

From: MATT LAVANCHY

Date:01/08/2014 4:27 PM (GMT-08:00)

To: Todd Thalhamer Cc: TERRY LOEHRER

Subject: Fwd: WLL Trench Piping Issue

Todd, not sure if this was sent to you already but I think your expert opinion in this should be heard. My opinion would just be an opinion, but allowing a means for oxygen to be drawn into that part of the landfill will only support the combustion process of any sse that makes its way there.

Matt

Sent from my Verizon Wireless 4G LTE Smartphone

----- Original message -----

From: Harvey Ferdman

Date:01/08/2014 4:38 PM (GMT-06:00)

To: MATT LAVANCHY ,Todd.Thalhamer@CalRecycle.ca.gov

Subject: WLL Trench Piping Issue

Matt and Todd,

Todd, I mentioned this issue to Matt and he asked me to send this email:

On a briefing conference call today by the EPA, they said that the next phase of building a barrier in Area 1 at West Lake Landfill is to do core sampling using a sonic drill. The holes left from the drilling are going to be fitted with PVC piping and a removable cap so they can access them in the future if needed. The deepest they expect to go is 80 feet.. My question and concern is: is it safe to leave multiple pipe paths deep into this dump that can potentially allow oxygen infiltration? I asked the EPA if a dump expert had reviewed this part of the plan, and, after a lot of dancing, the answer was effectively a no, as they did not see any reason for the concern that I raised. My fear is that someone in the future (or some natural act, like a tornado, earthquake, or animal) may damage a cap or two and open up a pathway for oxygen to make it deep within this dump and start a smolder event or fire, and the potential for odor releases.

Should I be concerned about this?

Item 3:

In the presence of petroleum soaked soil, can this start an SSE during the construction of the Isolation Barrier?

Note: Page 18 of document 40241235.pdf – VII Waste related information:

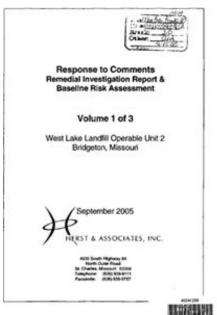
Waste Characteristics check-marked are: 2. Ignitable 3. Radioactive 5. Toxic and page 19 - Item 5 - Incompatible Wastes and presence of flammable and "shock sensitive" materials

Document 40056510:

- 1. Area 1 Boring Hole Samples
 - a. WL-101 at 5 ft discolored with petroleum odor OVM readings >10x background
 - b. Many other borings show similar presence of petroleum

Note: Page 18 – VII Waste related information: Waste Characteristics check-marked are: 2. Ignitable 3. Radioactive 5. Toxic and page 19 - Item 5 - Incompatible Wastes

2. Area 1 – An underground diesel tank is located beneath the asphalt paved area in the west portion of Area 1. The tank is no longer in use but has not be removed because it is within the boundaries of Area 1 and has leaked into the surrounding area – another tank leaked prior to removal in 1993 resulting in "floating product thickness as high as 3.7 feet has been observed" according to the following document:



Harvey Ferdman

Policy Advisor to

Missouri State Representative Bill Otto, District 70

St. Louis, MO 63017

314-469-0595

314-761-5100 (cell)

Site: West Lake Lindfl.

ID #M00079900932

Break: 3.3041

Other: Mclaren / Hart
2-25-97

ENGINEERING MANAGEMENT SUPPORT

12335 West 53rd Ave. Suite 201 Arvada, CO 80002 Telephone (303) 940-3426 Telecopier (303) 940-3422

February 25, 1997

Mr. Jalal El-Jayyousi
State of Missouri
Department of Natural Resources
Division of Environmental Quality
P.O. Box 176
Jefferson City, MO 65102-0176

RECEIV

MAR 03 1997

SUPERFUND DIVISION

Mr. John Niffenegger Sverdrup 13723 Riverport Maryland Heights, MO 63043

SUBJECT: Copies of Boring Logs and Aquifer Testing Results West Lake Landfill Operable Unit 1 Bridgeton, Missouri

Dear Messrs. El-Jayyousi and Niffenegger,

Mr. Steve Kinser of USEPA Region VII requested that we forward copies of pertinent appendices from two recent McLaren/Hart reports on the subject project for your use. Specifically, the following information is enclosed:

- From the Soil Boring/Surface Soil Investigation Report, West Lake Landfill Areas 1 &2 (McLaren/Hart, November 26, 1996):
 - Area 1 Boring Logs
 - Area 2 Boring Logs
 - Area 1 Soil Boring Downhole Gamma Logs
 - Area 2 Soil Boring Downhole Gamma Logs
 - PVC Boring Downhole Gamma Logs
- From the Groundwater Conditions Report, West Lake Landfill Areas 1 &2 (McLaren/Hart, November 26, 1996):
 - Boring Logs and Well Construction Details
 - Aquifer Testing Results



If you have any questions please call me.

Sincerely,

ENGINEERING MANAGEMENT SUPPORT, Inc.

Robert T. Jelinek, P.E.

Enclosures

cc: (w/ enclosures):

Steve Kinser, USEPA Region VII

(w/o enclosures):

Doug Borro - Laidlaw Waste Systems Inc.

Ward Herst - Golder Associates

Michael Hockley - Spencer Fane Britt & Browne

Steve Landau - Cotter Corporation

Charlotte Neitzel - Holme Roberts & Owen

James Wagoner II - U. S. Department of Energy

William Werner - Stolar Partnership

W.E. Whitaker - Rock Road Industries



Prepared for:

The West Lake Respondent Group

Prepared by:

McLaren/Hart Environmental Engineering Corporation 1000 Town Center, Suite 600 Southfield, Michigan 48075

Prepared by:

David J. Heinze

Senior Associate Engineer

Reviewed by:

Bruce E. Ehleringer

Managing Principal Geoscientist

November 26, 1996

Project No. 07.0803035

RECEIVIE

MAR 03 1997

SPERRIND DIVISION

SOIL BORING/SURFACE SAMPLE INVESTIGATION REPORT WEST LAKE LANDFILL RADIOLOGICAL AREAS 1 AND 2 BRIDGETON, MISSOURI

Figure 3-53	Soil Analytical Data, Priority Pollutant Metals, Area 1
Figure 3-54	Soil Analytical Data, Priority Pollutant Metals, Area 2
Figure 3-55	Soil Analytical Data, Total Petroleum Hydrocarbons, Area 1
Figure 3-56	Soil Analytical Data, Total Petroleum Hydrocarbons, Area 2
Figure 3-57	Soil Analytical Data, Polychlorinated Biphenyl, Area 1
Figure 3-58	Soil Analytical Data, Polychlorinated Biphenyl, Area 2
Figure 3-59	Perched Water Uranium-238 Decay Series Analytical Data
Figure 3-60	Perched Water Uranium-235 Decay Series Analytical Data

APPENDICES

Appendix A	Background Soil Sampling Analytical Results
Appendix B	Boring Logs
Appendix C	Soil Sampling Analytical Results
Appendix D	Letter from Quanterra Regarding Soil Analytical Procedural Error
Appendix E	Perched Water Sampling Analytical Results
Appendix F	Soil Priority Pollutant and Contingency Soil Sampling Analytical Results
Appendix G	Perched Water Priority Pollutant and Leachate Indicator Parameter Sampling
	Analytical Results
Appendix H	Downhole Logs
Appendix I	OA/OC Review

Area 1 Boring Logs

	C	oil Bori				ACIACA	
	٠		" 5	7//	_	yc <u>larer</u> Hart	
		Log				nail	
		Boring No.		Project No/Name Page:			
		WL-101		07.0803035.003	.002	1 of 1	
Star	rt/Finish D	ate		Site Name and I	ocation		
8/4/	95			West Lake Lands	ill; Bridgeton, Mi	ssouri	
Dril	ling Contr	actor		Boring Location	:	Area i	
Har	Environme	ental Drilling		Ground Surface	Elevation:	456.5	
Dril	ler			Northing:		1069549.55	
Max	Tinnin			Easting:		516317.21	
	ling Equip					Geologist/Office	
		Rig, Hollow Stem	, , , , , , , , , , , , , , , , , , , 		Tim Biggs / St. L		
	Size/Type	48.77.1	Sample M		T.D. Borebole	Weil Installed?	
	4" ID; 8 1/4	4" Hole	15' Continue	ous Sampler	25'	None Installed	
	<u> </u>	T	T				
Depth (A)	Sample ID#	Geiger Reading (mR/br)			Description		
			0.0-17.0' <u>L</u>	andfill Debris: soil	l consisting of clayey silt to sandy silt,		
	WL-101	Background	and c	rushed rock; no tra	istry debris encour	ntered; dry to moist.	
5	5'	(0.02-0.04)	1				
	WL-101	Background	1	soil discolored with petroleum odor, OVM readings			
10	10'	(0.02-0.04)	great	er than 10 X backs	round.		
	W. 10.	Damin and					
15	WL-101	Background (0.02-0.04)]				
	 -	(0.02-0.04)	1				
	WL-101	Background	Background 17 0-25.0'		grayish brown si	ightly silty, plastic	
20	20'	(0.02-0.04)	1	grading to dark gray, very fine-grained sand; moist to wet.			
		<u> </u>	1	, , ,		-,	
	WL-101	Background	@ 23	3.0' wet			
25	25'	(0.02-0.04)	Boring term	ninated @ 25'			

Radiological samples collected at 5 and 20 feet below ground surface.

Non-radiological samples collected at 5 and 25 feet below ground surface; contingency sampling.

Perched water not encountered during boring activities.

Groundwater encountered at 23 feet below ground surface.

	S	oil l		rin	ıg	11	A	٨	ACIA Hai	ren E
			ng No			Project No./Na	me			Page:
L		WI	<u> -10</u>	2		07.0803035.003	.002		·	l of l
1	Start/Finish Date					Site Name and				
8/4/						West Lake Land		n. Mis		
ı	lling Conta					Boring Location			Area 1	
-	t Environm Ner	ental Di	niling			Ground Surface	: Lievation:		462.8 1069260.46	
	uer x Timnin					Northing: Easting:			515974.05	
_	ling Equip	ment				Example:	McI aren/	Hart C	Geologist/Office	
1	E-55 Drill 1		ilow S	tem .	Augers		Tim Biggs		_	
	Size/Type				Sample M	lethod	T.D. Boret		Weil Installed	?
	4" ID; 8 1/	4" Hole	<u> </u>			ous Sampler	34'		None installed	
Ren	narks:									
Depth (ft)	Sample 1D#	Geiger	Reading	(mR/hr)			Descript	zion	· · · · · · · · · · · · · · · · · · ·	
	WL-102	Back	groun	d	0.0 -23 .0' <u>L</u>	andfill Debris: tra	shy debris co	nsistin	g of wood, plasti	c,
5	5'	(0.02-	0.04)			and wire; soil consisting of olive gray silt and dark gray,				
	None	Do ale				plastic clay to grayish brown, sifty sand and crushed rock;				
10	Taken	Backs (0.02-			· ury to	moist.				
	1-401	1(0.02	0.04)							
	None	Backg	rounc	1						
15	Taken	(0.02-								
	None	Backg	Toung	ı						
20	Taken	(0.02-	0.04)							
25	WL-102	Backg	•			Native Alluvium: grading to dark gra	- •			:
		1(0.02-	0.04)	\dashv	CLEY 8	hermig to mark Sta	A' mio-Riani	ou sent	u, 11101St.	
	WL-102	Backg	round	ı İ						
30	30'	(0.02-								
		<u> </u>								
	WL-102	Backg		ı						
35	35'	(0.02-	0.04)	- 1	Auger refus	al @ 34'				

Radiological samples collected at 5 and 15 feet below ground surface; downhole logging indicated elevated gamma readings from 2.0 - 4.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring scrivities.

Groundwater not encountered during boring activities.

	S	oil Borii	ıg		Λ	ACIA Har	<u>ren</u>		
		Log			<u> </u>	Hai	L		
]		Boring No.		Project No./Name Page:					
	rt/Finish D	WL-105A		07.0803035.003 Site Name and I		1	of 2		
1	95 / 8/9/95	Luc			ill; Bridgeton, Miss	souri			
Dri	ling Coutr	actor		Boring Location	n:	Area 1			
_		ental Drilling		Ground Surface	Elevation:	467.2			
Dri	ter Tinnin			Northing: Easting:		1069136.26 515871.62			
-	ling Equip	ment		·	McLaren/Hart C				
-		tig, Hollow Stem	~		Tim Biggs / St. Lo				
1	Stze/Type 4" ID; 8 1/4	4" Hole	Sample M 5' Continue	eunou xus Sampier	T.D. Borehole 109'	Well Installed? D-3			
	uarks:	·							
Depth (A)	Sample ID#	Geiger Reading (mR/hr)			Description				
5	None Taken	None Taken	: -		ndfill Debris: trashy debris consisting of cloth, wood, nd plastic; soil consisting of brown and gray silt, and				
<u> </u>			-	ed rock; dry to mo	-	0)			
10	WL-105A	None							
-	10	Taken	1						
	None	None	l				i		
15	Taken	Taken	ļ						
	None	None	İ						
20	Taken	Taken	Ĭ						
25	None Taken	None Taken							
	WL-105A	None							
30	30'	Taken	30 0-60 0	Native Allumines	dark gray clayey s	ilt amalina ta fic-			
	None	None	1	rse-grained sand a		Praeming to mise			
35	Taken	Taken					1		
40	None Taken	None Taken	@ 30*	wet					
45	WL-105A 47	Background	1				1		
45	7/	(0.04-0.06)							
	None	None							
50	Taken	Taken							
	None	None							
55	Taken	Taken					}		
	None	None							
60	Taken	Taken					j		

	S	oil]		rin	ıg		1	yclarer Hart	
		Bort	-	<u> </u>	1000 page 100 page 1	Project No./Nan		Page:	
			-	-)5A		07.0803035.003		2 of 2	
Sta	rt/Finish D					Site Name and I			
	95 / 8/9/95						ill; Bridgeton, Mi	ss ouri	
Drif	ling Contr	actor				Boring Location		Area 1	
Har	Environme	ental De	rilling	3		Ground Surface	Elevation:	467.2	
Dri	ler					Northing:		1069136.26	
Max	Tinnin					Easting:		515871.62	
Dri	iing Equip	ment						Geologist/Office	
	E-55 Drill F	lig, Ho	low :	Stem .			Tim Biggs / St. I		
	Stze/Type				Sample M		T.D. Borehole	Well Installed?	
_	4" ID; 8 1/4	4" Hole			5' Continue	ous Sampler	109'	D-3	
-	rario:	T			1				
Depth (A)	Sample ID#	Gelger	Reading	(mR/hr)			Description		
70	None Taken	None Taker			60.0-109.0' Native Alluvium: dark gray clayey silt grading to fine to coarse-grained sand and gravel; wet.				
75	None Taken	None Taken	1						
80	None Taken	None Taken	1						
85	None Taken	None Taken							
<u> </u>	None	None	<u> </u>						
90	Taken	Taken	l						
0.5	None	None							
95	Taken	Taken							
	None	None							
100	Taken	Taken							
				-					
	None	None		l					
105	Taken	Taken							
	None	Backg		- 4	A	al @ 100 @ Cal-	داد		
110	None Taken	Backg	round	- 4	Auger refus	al @ 109.0° (bedro	ick)		

Radiological samples collected at 10 and 30 feet below ground surface; downhole logging indicated elevated gamma readings from 0.5-11.0°.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 30 feet below ground surface.

	S	oil Borin	ıg		1	ycla Hai	ren			
		Log				Hai				
		Boring No.		Project No/Name Page:						
		WL-105B		07.0803035.003	.002		1 of 2			
Stau	rt/Finish D	ate	<u></u>	Site Name and I	ocation	<u> </u>				
8/10				† 	ill; Bridgeton, Mis					
	lling Contr			Boring Location		Farmers Field				
Hari		ntal Drilling		Ground Surface Northing:	Elevation:	466 1069148.42				
	uer «Tinnin			Easting:		515889.50				
 -	iling Equip	ment		zarete.	McLaren/Hart					
		Rig, Hollow Stem	Augers		Tim Biggs / St. L	=				
	Size/Type		Sample M		T.D. Borehole	Weil installed	?			
	4" ID; 8 1/4	4" Hole	5' Continuo	ous Sampler	79'	I-4				
Ken	SALTICS:		T							
			•							
Depth (A)	Sample ID#	Gelger Reading (mR/hr)			Description					
	None	None	0.0-30.01	0.0-30.0' Landfill Debris: trashy debris consisting of cloth, wood.						
5	Taken	Taken			onsisting of brown	-				
۳	10.00.	1-1-1-1	-	ed rock; dry to mo	_	Gray said				
(None	None								
10	Taken	Taken								
i		25								
15	None Taken	None Taken								
۳	1.444	, randi								
	None	None								
20	Taken	Taken								
1	None	Danis arrows d								
25	None Taken	Background								
	<u> </u>									
	WL-105B	Background								
30	30'	(0.04-0.06)	@30'							
	1				dank gray clayey s	silt grading to fine	e to			
],,	WL-105B	Background	coarse	rgrained sand and	gravel; wet.					
35	35'	(0.04-0.06)								
	WL-105B	Background								
40	40'	(0.04-0.06)								
							-			
	None	None								
45	Taken	Taken								
	None	None								
50	None Taken	None Taken					ł			
	None	None					}			
55	Taken	Taken								

~

		S	oil	• • • • • • • • • • • • • • • • • • • •	riı	ıg			^	MCIA Hai	ren
				og				7		ा । त्य	
		Boring No.					Project No./Na				Page:
	WL-105C						07.0803035.00	_		·····	l of l
	rt/Finis	b D	tte				Site Name and				
	8/15/95 Drilling Contractor						-	-	ll; Bridgeton, Mis	Souri Area 1	
	uing Co t Enviro			-:11!			Boring Location			Area 1 465.7	
Dri		KUIK	TIME D	ming			Northing:	ъ.	ElCYAUUG.	1069155.84	
-	r Tinnin						Easting:			515901.03	
	ling Ec		ment			 	DESCRIPTION OF THE PROPERTY OF	1	McLaren/Hart		
	E-55 D			llow S	tem .	Augers			Tim Biggs / St. L	_	
	Sizze/Ty					Sample M	ethod	ŀ	T.D. Borehole	Well Installed	?
_	4" ID;	8 1/4	" Hole	:		5' Continuo	ous Sampler	Ŀ	43'	S-5	
Ren	arks:		1				<u> </u>				
Depth (A)	Sample	# Q!	Gelger	Reading	(mR/br)				Description		
5	None Taken		0.7	- -		i			ry debris consisting	-	
10	None Taken	1	0.2			crush	ed rock; dry to m	Юİ	st.		
15	None Taken	ı	1	ground -0.04)							
	None		Back								
20	Taken		· `	ground 4).04)							
	None			round							
25_	Taken		(0.02-								
	None		Backs	pround	l						
30	Taken		(0.02-	0.04)		@ 30°			 		
	. .		<u> </u>			_			iark gray clayey	silt grading to fine	•
	None			ground		to coa	rso-grained sand	an	d gravel; wet.		
35	Taken		(0.02-	0.04)							
	None		Backe	pround							
40	Taken		(0.02-	0.04)		ı					
	None		Backg	mund			•				
15	Taken		(0.02-	•		Rocina term	inated @ 43.0°				

Radiological samples not collected during boring activities, downhole logging indicated elevated gamma readings from 1.5-5.5'

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 30 feet below ground surface.

S	oil Bori Log	ng			<u> Hart</u>	
	Boring No.		Project No./Na	me	Page:	
	WL-106		07.0803035.003	3.002	l of l	
Start/Finish D	ate		Site Name and	Location	_	
8/11/95			West Lake Land	fill; Bridgeton, Mi	ssouri	
Drilling Contr	actor		Boring Locatio	a:	Area 1	
Hart Environme	ental Drilling		Ground Surfac	e Elevation:	465.4	
Driller			Northing:		1069301.64	
Max Tinnin			Easting:		516082.18	
Drilling Equip CME-55 Drill F	ment Rig, Hollow Sterr	Augers		McLaren/Hart Geologist/Office Tim Biggs / St. Louis		
Bit Size/Type		Sample M	lethod	T.D. Borehole	Well Installed?	
4 1/4" ID; 8 1/4	4" Hole	5' Continu	ous Sampler	20'	None Installed	
Depth (A) Sample ID#	Gelger Reading (mR/hr)			Description		
None 5 Taken	Background (0.02-0.04)	1		•	ng of wood, plastic, ly silt to clayey silt,	
None	Background	and o	crushed rock; dry t	o moist.		
10 Taken	(0.02-0.04)	4				
None Taken	Background (0.02-0.04)					
None Taken	Background (0.02-0.04)	Boring terr	ninased @ 20.0'			

Radiological samples not collected during boring activities; downhole logging indicated elevated gamma readings from 2.5-5.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

	S	oil Borii Log	ng		1	MCIA Hai	<u>ren</u>	
Г		Boring No.		Project No./Name Page:			Page:	
<u>_</u>		WL-106A		07.0803035.003			1 of 1	
1	rt/Finish D	ete		Site Name and I				
	1/95				ill; Bridgeton, Mis	souri		
	Hing Conta	•		Boring Location		Area 1		
		ental Drilling		Ground Surface	Elevation:	462.8		
Des				Northing:		1069317.25		
-	Tinnin			Easting:		516061.92		
1	Hag Equip		Auges		McLaren/Hart (-		
	Size/Type	Rig, Hollow Stem	Sample M	ethod	Tim Biggs / St. L T.D. Borehole	Well Installed	,	
1	4" ID; 8 1/	4" Hole		ous Sampier	35'	None installed	•	
	varies:		1			1		
Depth (A)	Sample ID#	Geiger Reading (mR/hr)			Description			
5	None Taken	0.5-1.0	1	Landfill Debris: trashy debris consisting of wood, plastic, ss, and wire; soil consisting of dark gray silt to clayey silt,				
10	None Taken	0.5-1.0	and c	rushed rock; dry to	moist,			
15	None Taken	0.5-1.0						
20	None Taken	0.05-0.10						
25	WI-106A 25'	Background (0.06-0.10)	24.0-35.0' Native Alluvium: dark gray, silty, plastic clay grading					
					rained sand; moist			
30	W1-106A 30'	Background (0.06-0.10)	@ 30° wet					
35	WI-106A 35'	Background (0.06-0.10)	Boring term	inated @ 35.0*				

Radiological samples collected at 5 and 25 feet below ground surface; downhole logging indicated elevated gamma readings from 0.0-1.0'

Non-radiological samples collected at 30 feet below ground surface; priority pollutant and priority pollutant duplicate collected and analyzed.

Perched water not encountered during boring activities.

Groundwater encountered at 30 feet below ground surface.

98.830	xxxx, x.kišiid . 👡		augustus en de			1010505
	S	oil Borir	ıg		/ 	<u>MCIaren</u> Hari
		Log				'Hārt'
5,836		Boring No.		Project No./Nar	ne	Page:
		WL-107		07.0803035.003		1 of 1
Sta	rt/Finish D			Site Name and I		l or r
9/5/		ale:			fill; Bridgeton, Mi	escuri
-	lling Contr	actor		Boring Location		Area i
	ling Service			Ground Surface		486.1
DH		, , , , , , , , , , , , , , , , , , ,		Northing:		1068909.52
Bru	ce Murphy			Easting:		516254.31
Dril	ling Equip	ment			McLaren/Hart	Geologist/Office
וננו	I-80T Drill	Rig, Large Diame	ter Auger		Tim Biggs / St. I	ouis
	Stze/Type		Sample M		T.D. Borebole	Well Installed?
	OD Solid A	uger	Grab from	Auger	52	None Installed
Ken	sarks:	<u> </u>	1		·	
1	1	1	1			
2					Description	e.
Depth (A)	Sample ID#	Geiger Reading (mR/hr)			2 330,1,	
콥	Samı ID#	Geiger Readin (mR/hr				
						· · · · · · · · · · · · · · · · · · ·
1	WL-107	Background	0.0-51.0° L	andfill Debris: tra	shy debris consist	ing of wood, plastic,
5	5'	(0.02-0.04)	4			rpeting, glass and wire;
l	N7 107			_		sh brown and dark
١.,	WL-107	Background	gray	clayey silt, and roc	ik; dry to wet.	
10	10	(0.02-0.04)				
l	WL-107	Background			• •	
15	15'	(0.02-0.04)				
	WL-107	Background				
20	20°	(0.02-0.04)				
1	1					
•	WL-107	Background				
25	25'	(0.02-0.04)				
Ī		<u>[</u>				
20	WL-107	Background				
30	30'	(0.02-0.04)				
	WL-107	Background				
35	35'	(0.02-0.04)				
	- -	(0.02-0.04)_				
	WL-107	Background				
40	40'	(0.02-0.04)				
	WL-107	Background				
45	45'	(0.02-0.04)				
	WL-107	Background				
50	50'	(0.02-0.04)				
	WL-107	Background	51.0-52.0° <u>]</u> @ 51'		dark gray, silty, fi	ne-grained sand; wet.
55	52°	(0.02-0.04)	-	we. g terminated @ 52	2.04.	
		N-10- 0.0 1/	20.01			

Radiological samples collected at 5 and 51 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 51 feet below ground surface.

	S	oil L	Bo og		ıg			MCIA Hai	<u>ten</u>	
		Bori	og N	0.		Project No./Na	me		Page:	
		WI	J-10)8_		07.0803035.00	3.002		1 of 1	
Star	√Finish D	ate				Site Name and	Location			
9/5/	95					West Lake Land	Ifill; Bridgeton, Mis	ssouri		
Dril	ling Cont	ractor				Boring Locatio	a:	Area l		
Dril	ling Servic	e Comp	алу			Ground Surfac	e Elevation:	472.5		
Dril	ler					Northing:		1069144.21		
Bruc	≈ Murphy					Easting:		516379.68		
	li <mark>ng Equip</mark> I-80T Dril		arge i	Diamo	eter Auger	McLaren/Hart Geologist/Office Tim Biggs / St. Louis				
	Size/Type				Sample M	ethod	T.D. Borehole	Well Installed?		
	OD Solid A	Auger			Grab from		22'	None Installed		
Ren	arks:									
Depth (ft)	Depth (A) Sample ID # Gelger Reading (mR/hr)						Description	· .	· · · · · ·	
5	WL-108	Back	_		1 –		ishy debris consisti	•		
	3	(0.02	40.04)			nd cardboard; soil of and rock; dry to w	_		
	None	None			0.0		, and took, any to t			
10	Taken	Taker	1							
	None	None			@ 12	' wet				
15	Taken	Taker	1							
		1	-		1					
	None	None								
20	Taken	Taker	1							
	None	None								
25	Taken	Taken	ì	ļ	Boring abau	ring abandoned @ 22.0'				

Radiological sample collected at 5 feet below ground surface.

Non-radiological grab sample collected from perched water.

Perched water encountered at 12 feet below ground surface.

Groundwater not encountered during boring activities

	S	oil]	****	******	ıg			٨	ACIA Hai	ren
		Bort	ng N	Q.		Project No./Na	ne			Page:
İ			-)9B		07.0803035.003	.002			1 of 2
Sta	rt/Finish D					Site Name and				
	95 / 10/24/					West Lake Land		Mie	souri	
$\overline{}$	ling Contr		-			Boring Location			Area 1	
	t Environme		illine	,		Ground Surface			484.5	
	ling Service		-			Northing:			1068947.16	
Dri	_ -					Easting:			516523.17	
Max	Tinnin					7	McLaren/H	lart (Geologist/Office	
Brue	ce Murphy					Tim Biggs / St. Louis				
Dri CM LDI	ling Equip E-55 Drill F I-80T Drill	tig, Ho			-					
	Size/Type				Sample M		T.D. Boreh	ole	Weil Installed	?
	4" ID 8 1/4"				Continuous	•	59*		D-14	
_	OD Solid A	nger			Grab from	Auger			<u> </u>	
Depth (A)	Sample ID#	Gelger	Reading	(mR/hr)			Descripti	on		
	None	None			0.0-49.0' <u>I</u>	andfill Debris: tr	ashy debris co	nsisti	ng of wood, plas	tic,
5	Taken	Taker	l		brick.	, paper, wire, rubb	er, metai, yan	d was	te, and carpeting	; soil
						sisting of olive brown to dark gray silt, gray to black silty y, and crushed rock; dry to moist; warm.				
	None	None			ciay,	and crushed rock;	dry to moist;	warm	L	
10	Taken	Taken	<u> </u>							
	<u> </u>									•
15	None Taken	None Taken								
13	Laker	Lake	<u> </u>							
	None	None								
20	Taken	Taken	l							
	None	None								
25	Taken	Taken								
	None	None								
30	Taken	Taken								
		1								
	None	None								
35	Taken	Taken								
	None	None								
40	Taken	Taken								
	l.,	<u> </u>					_			
	None	None			@ 45.	.0' sample had tem	perature of 11	6°F		
15	Taken	Taken								

						in service acceptor					
	\$	30	oil I Lo		riı	ıg		^	MCIA Hai	<u>fen</u>	
23.2	- Carrier Congress		Borû		<u> </u>	arre de gere como	Project No/Nar	ne		Page:	
			WL	_			07.0803035.003			2 of 2	
Star	t/Finish	Dat					Site Name and I	Location		1	
10/2	4/95						West Lake Landi	fill; Bridgeton, Mis	souri		
Drii	ling Con	tra	ctor				Boring Location	1:	Area 1		
Hart	Environ	nen	tal Dr	illing			Ground Surface	Elevation:	484.5		
Drill	ling Servi	œ (Compa	uny			Northing:		1068947.16		
Drii	ler						Easting:		516523.17		
Max	Tinnin						,	McLaren/Hart	Geologist/Office		
Bruc	e Murph	<u>y</u>						Tim Biggs / St. L	ouis		
D⊤Æ	ing Equ	pan	ent								
СМІ	5-55 Drill	Ri	g, Hol	low S	tem .	Augers					
LDH	I-80T Dr	II R	ig, La	rge D)iame	ter Auger		<u> </u>			
Bit S	tze/Type	:				Sample M	ethod	T.D. Borehole	Well Installed	•	
4 1/4	ID 8 1/	4"]	Hole			Continuous	s Sampler	59*	D-14		
24" (DD Solid	Αu	ger			Grab from	Auger				
Rem	arks:	_									
Depth (ft)	Sample		Gelger	Reading	(mR/hr)		····	Description			
	None	- 1	None								
50	Taken	┩	Taken					dark gray, clayey	and silty, very fir	1¢-	
		ı				graine	ed sand; moist; wa	rm.			
	None	- 1	None								
55	Taken	47	Taken								
	WL-109B	1	None						•		
60	594	h	l'aken		,	Auger refus	refusal @ 59.0' (bedrock)				

Radiological samples not collected during boring activities.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

	S	oil L	Bo		g			MCI Hai	<u>rer</u>		
	<u> </u>		og No			Project No/Nat	ne		Page:		
ŀ			10			07.0803035.003	.002		1 of 2		
Star	rv/Finish D	ate				Site Name and I	Location				
9/12	2/95					West Lake Landi	fill; Bridgeton, M	issouri			
Dri	lling Contr	actor				Boring Location	1;	Area I			
Dril	ling Servic	e Comp	any			Ground Surface	Elevation:	483.9			
Dril	ller					Northing:		1068961.12			
Bru	ce Murphy					Easting:	 _	516528.43			
	ling Equip		_					Geologist/Office	:		
_		ing Rig	Larg	e Dia	meter Auge		Tim Biggs / St.		•		
	Size/Type OD, Solid .	Δ11 0 -			Sample M Grab	CMOD	T.D. Borehole	Well Installed None installed	•		
	00, 3010 . narks:	-mgci			(C) BU		121	Trone msancu	· · · · · · · · · · · · · · · · · · ·		
Depth (A)	Sample ID#	Gelger	Reading	(mR/hr)			Description				
_	None	Back	-		1			ing of wood, plast	ic,		
5_	Taken	(0.02	-0.04)		•	, paper, wire, meta	•	l carpeting; soil t, gray to black sil	٠.		
	None	Backs	zrouna	f	l	and crushed rock;			ıy		
10	Taken	(0.02	-		1,						
	None	Backa	ground	i							
15	Taken	(0.02-	0.04)								
	None	Backs	round		-						
20	Taken	(0.02-	0.04)								
2.5	None Taken	Backg	•	ı							
	Laken	(0.02-	v.v 4)								
į	None	Backg	mound	. 1							
30	Taken	(0.02-		- 1							
	-	1		\dashv							
	None	Backg	round		-						
35	Taken	(0.02-		{							
		T									
	None	Backg	pround								
10	Taken	(0.02-	0.04)]							
	None	Backg		1							
15	Taken	(0.02-	0.04)								

	S	oil Bori Log	ng	\ \	4	/	MCIA Hai	<u>rer</u>	
		Boring No.		Project No/	Vame			Page:	
		WL-109I)	07.0803035.0	03.002		•	1 of 2	
Stat	rvFinish D	ate		Site Name an	d Location			<u> </u>	
10/2	23/95			West Lake La	ndfill; Bridgeto	n, Mis	souri		
Dril	ling Contr	actor .		Boring Local	tion:		Area I		
Har	Environme	ental Drilling		}	ace Elevation:		485.6		
	ling Service	Сотралу		Northing:			1068947.38		
Dril				Easting:	Malana		516504.97		
	Tinnin Murphy			McLaren/Hart Geologist/Office Tim Biggs / St, Louis					
	E Murphy ling Equip	ment			ı un Diggs	/ SL L	Ouis		
	• • •	tig, Hollow Sten	Augers						
		Rig, Large Dian	_						
	Size/Type		Sample M		T.D. Borel	iole	Weil Installed	?	
	4" ID 8 1/4'		Continuou	•	59'		D-14		
_	OD Solid A	mact	Grab from	om Auger					
Depth (ft)	Sample ID#	Gelger Reading (mR/br)			Descrip	tion			
	WL-109D			andfil Dahaia	mohu debuis se		a of word slow	<u> </u>	
5	5'	Background (0.02-0.04)		6.0' <u>Landfill Debris</u> : trashy debris consisting of wood, plastic, brick, shingles, paper, wire, metal, yard waste, and carpeting;					
	ľ	(0.02 0.04)	- 4				silt, gray to blac	_	
WL-109D Background			silty	clay, green and	red weathered s	hale,	and crushed rock	; dry	
10	10'	(0.02-0.04)	_ to ma	oist, warm.					
15	WL-109D	Background (0.02-0.04)							
	1.5	(0.02-0.04)	-{						
	WL-109D	Background							
20_	20'	(0.02-0.04)							
	WL-109D	Background							
25	25'	(0.02-0.04)	-						
30	WL-109D	Background (0.02-0.04)							
	100	(0.02-0.04)	1						
	WL-109D	None							
5	35'	Taken							
			7						
	WL-109D	Background							
0	40'	(0.02-0.04)	4						
			}						
_	WL-109D	Background							
5	45'	(0.02-0.04)	1	•					
. 1	WL-109D	Background							
0	50'	(0.02-0.04)	1						
	WL-109D	Background							
5	55'	(0.02-0.04)	1						



		· · · · · · · ·	og		ıg			M <u>clare</u> Härt	
		Bor	ing N	0.		Project No/Nat	ne	Page:	
	_	. W	L-10)9D	_	07.0803035.003	.002	2 of 2	
Star	t/Fiaish	Date				Site Name and I	ocation		
10/2	3/95					West Lake Lands	fill; Bridgeton, Mi	ssouri	
Drill	ing Con	tractor				Boring Location: Area i			
Hart	Environ	nental [anillint	5		Ground Surface	: Elevation:	485.6	
Drill	ing Scrvi	œ Com	ралу			Northing: 1068947.38			
Drill	er					Easting:		516504.97	
Max	Tinnin					1	McLaren/Hart	Geologist/Office	
Bruo	e Murphy	<u>'</u>				<u> </u>	Tim Biggs / St. L	.ouis	
CME	ing Equi -55 Drill -80T Dri	Rig, H			Augers ter Auger				
Bit S	ize/Type				Sample M	ethod	T.D. Borehole	Weil Installed?	
4 1/4	" ID 8 1/	4" Hole			Continuous	s Sampler	59'	D-14	
24" (DD Solid	Auger			Grab from	Auger	<u> </u>	<u> </u>	
Rem	arks:								
Depth (ft)	Sample	Gelger	Reading	(mR/br)			Description		
50	None Taken		groun 2-0.04)		ŀ	Native Alluvium:	dark gray clayey	silt grading to fine-	
	None Taken	Back	groun	d		sai @ 62.0' (bedro	-i-)		

Radiological samples not collected during boring activities.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

								-	· -	
		S	oil		rir	ıg		^ /	MCIA	<u>ren</u>
			L	og					Har	
			Bori	ing No).	,	Project No./Nar	ne		Page:
			WI	L-11	0		07.0803035.003	.002		l of 2
Star	√Fini	sb D	le				Site Name and I	ocation		
9/6/	95						West Lake Landi	ill; Bridgeton, Mi	ssouri	
Dril	liog (ontr	actor				Boring Location	ı:	Area 1	
Dril	ling S	ervice	Comp	auv			Ground Surface	Elevation:	484.41	(Planned Boring
Dril	ler						Northing:		1068889.01	location, not
-	∞ Mu				<u> </u>		Easting:	Y	516645.03	surveyed)
	li og E			. 1	- D	A		McLaren/Hart	_	
	1-80 l Sizze/T		ng Kiệ	<u>, Lan</u>	שעו ש	Sample M				
1	OD, S	- •	шдег			Grab from		56'	None installed	
_	ıarks:					, 3.23 20.00			1	
<u></u>										
Depth (ft)	=		1 =	gul	(ra			Description		
P D	Sample	# 0.	Gelger	Reading	(mR/br)			•		
-	8		<u> </u>	<u> </u>	<u> </u>	 				
Ì	WL-110 Background 0.0-50.						andfill Debris: tras	hy debris consisti	ng of wood, plastic	٠,
5	5'		(0.02	-0.04)	ı	wire,	insulation, paper,	and metal; soil cor	nsisting of olive	
		_				brow	n silt, dark gray to	grayish brown sili	ty clay, and crushe	xd
	WL-	110	1	Stonuc		rock;	dry to moist; warr	n to very warm.		
10	10'		(0.02	-0.04)		ł				
	ĺ		Ĺ			ĺ				
15	WL-	110		ground						
15	113		(0.02	-0.04)		}				
	WL-	110	Back	ground	i .					
20	20'		1	-0.04)						
	WL-	10	Backe	ground	i					
25	25'		(0.02	0.04)						
	1	1	1						·	1
	WL-I	10		ground	ı					
30	30'		(0.02-	0.04)						
	WL-110 Background 35' (0.02-0.04)				١					
35、	35'	-	(0.02-	4).04)						
	WL-1	10	Doole							ļ
40	WL-1	IU	(0.02-	ground	۱					
+0	70		(0.02-	0.04)	ᅱ					ł
	WL-I	10	Backs	MOTION.						}
45	45'		(0.02-							ļ
	<u> </u>			3.5.7	\neg					1



WL-110 Background 50' (0.02-0.04)

		S	oil Le	Bo og		ıg	11	1	M ^C La	ren	
			Bori	ing N	۸.		Project No/Nai	ne		Page:	
	_		WI	<u>11</u>	0		07.0803035.003	.002		2 of 2	
Star	√Fisi	ish Da	ıte				Site Name and I	Location			
9/6/	95						West Lake Lands	fill; Bridgeton, Mi	ssouri		
Dril	ling C	oatr	ector				Boring Location	1:	Area i		
Drill	ling Se	crvice	Comp	any			—			(Planned Boring	
Dril	ler						Northing: 1068889.01 location				
Bruc	∞ Mu	грһу					Easting:		516645.03	surveyed)	
Dril	ling E	quip	nent					McLaren/Hart	Geologist/Office		
LDF	T08-1	Drilli	ng Rig	, Lan	c Du	meter Auge	r	Tim Biggs / St. L	ouis		
Bit S	Sizze/T	уре				Sample M	mple Method T.D. Borehole Well Installed?				
24"	OD, S	olid A	wger			Grab from	Augers	56'	None Installed		
Rem	arks:										
Depth (ft)	Sample	1D#	Gelger	Reading	(mR/br)			Description		!	
]					50.0-56.0'	Native Alluvium:	dark gray, clayey	silt, moist, very		
	WL-	110	Back	Stonu	d	warm	ı.				
55	55'		(0.02	-0.04)							
						@ 56	56.0' sample had a temperature of 140° F				
	WL-	110	Back	groun	d						
60	56'		(0.02	-0.041		Boring terminated at 56.0'					

Radiological samples collected from 5 and 50 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

	*******	·	 							
	S	oil Borii Log	ıg			MCIA Hai	<u>ren</u>			
		Boring No.		Project No-/Nar	ne		Page:			
		WL-111		07.0803035:003	.002		1 of 1			
Sta	rt/Fiaish D		·	Site Name and I	Location		<u> </u>			
9/1	1/95			West Lake Landi	ill; Bridgeton, Mi	ssouri				
Dri	lling Contr	actor		Boring Location		Areal				
Dni	lling Service	Сотрану		Ground Surface	Elevation:	474.5				
Dri	ller			Northing:		1069187.35				
Bru	ce Murphy			Easting: 516583.61						
1	Lling Equip			McLaren/Hart Geologist/Office						
		Rig, Large Diam			Tim Biggs / St. 1 T.D. Borehole	Weil Installed				
1	Size/Type OD Solid A	luger	Sample M Grab from		52'	None Installed	•			
	narks:	iuge.	TOTAL BOIL	· tagus	15-	Trione transfer				
		1.	T							
Depth (ft)	Sample 1D#	Gelger Reading (mR/hr)			Description					
lag	Samı ID#	3 2 5	<u> </u>							
	WL-111	Background]	-50.0' <u>Landfill Debris</u> : trashy debris consisting of wood, plastic, cloth, brick, rubber, paper, wire, glass, and metal; soil consisting						
5	5'	(0.02-0.04)	4		ier, wire, glass, an ilt, dark gray to gi		_			
	WL-III	Background	,	and crushed rock;		ay ian orown sirry				
10	10'	(0.02-0.04)			•					
	WL-111	Background								
15	15'	(0.02-0.04)								
	WL-111	Background								
20	20'	(0.02-0.04)	ļ							
25	WL-111 25'	Background (0.02-0.04)								
20	WL-111	Background								
30	30'	(0.02-0.04)								
	WL-111	Background	l.							
35	35'	(0.02-0.04)								
<u> </u>		1								
	WL-111	Background	,							
40	40'	(0.02-0.04)								
	WL-III	Background								
45	45'	(0.02-0.04)	@ 45'	wet						
	WL-111	Background								
50	50'	(0.02-0.04)								
					dark gray, silty, v	ery fine-grained				
	WL-111	Background	sand; v							
55	51'	(0.02-0.04)	Boring	terminated @ 52.	Ο.					

Radiological samples collected at 5 and 51 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 45 feet below ground surface.

	S	oil Bo Log	rin	g	11		Λ	/Cla	ren	
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						1700		
ĺ		Boring No			Project No./Nan				Page:	
-		WL-11			07.0803035.003.				1 of 1	
9/11	rt/Finish D	aic			Site Name and L		Mic	· ouei		
	ling Contr	Tetor			West Lake Lands Boring Location		i, Miss	Area I		
1	_	Company			Ground Surface			467.6		
Dril					Northing:			1069379.45		
Bru	∞ Murphy				Easting:			516628.22		
1	ling Equip							eologist/Office		
_		Rig, Large D	iame			Tim Biggs /				
1	Size/Type OD Solid A			Sample Mo Grab from .		T.D. Boreh	ole	Weil Installed? None Installed		
_	arks:	ruger .		CIRD BOIL	unkers .	74		Trone mstaned		
	Ī				_ 					
(2)			_			Descript	iou			
Depth (ft)	Sample ID#	Gelger Reading	(mR/br)			•				
ā	Sam _I	<u> </u>	E							
	WL-112	Background	1	0.0-38.0' <u>L</u> a	andfill Debris: tras	try debris cor	sistin	g of yard waste,		
5	5'	(0.02-0.04)			plastic, cloth, pap			=	of	
	\ \				h brown to dark g					
10	None Taken	None Taken		ciayey	clayey silt, and very fine-grained sand; dry to wet.					
<u></u>	I akcii	Taken								
	WL-112	Background	ı							
15	15'	(0.02-0.04)								
	 WL-112	Background	.							
20	20'	(0.02-0.04)								
	i									
	WL-112	Background								
25	25'	(0.02-0.04)								
	WL-112	Background								
30	30'	(0.02-0.04)								
		<u> </u>	_							
	WL-112	Background		@ 34'	wet					
35	35'	(0.02-0.04)			•				ļ	
		<u>.</u>	İ							
40	None	None	ſ	39 0 42 21 3	Janina Alleria	doel				
40	Taken	Taken			Native Alluvium: ained sand; moist		ty clay	grading to very		
	None	None	[me-gi	uusee suire, iivist				Ì	
45	Taken	Taken	ł	Boring term	inated @ 42.0'					
										

Radiological samples collected at 5 and 42 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 34 feet below ground surface.

WL-113 Background Backgro	(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	n anana <u>a</u> .	na ene		, 4 , 4 , 4 , 4 , 4 , 4 , 4 , 4 , 4 , 4 ,							
WL-113		S				ıg		^	ACIA Hai	ren		
Start/Finish Date 9/25/95 Drilling Contractor Drilling Service Company Ground Surface Elevation: Hof-Porting Equipment LDH-80T Drill Rig. Large Diameter Auger Sample Method Grab from Auger WL-113 Background 10 10 10 WL-113 Background 10 10 WL-113 Background 10 10 WL-113 Background 10 WL-113 Backgro			Bori	ng No	٥.		Project No/Nan	ne		Page:		
Prilling Contractor Drilling Service Company Drilling Service Company Drilling Service Company Drilling Service Company Drilling Service Company Drilling Service Company Drilling Equipment LDH-807 Drill Rig, Large Diameter Auger Black Stating: Sample Method T.D. Borehole Tim Biggs / St. Louis Black Stating: Description WL-113 Background (0.01-0.04)	ł		WI	11-ر	3		07.0803035.003	.002		1 of 1		
Drilling Service Company Driller Drilling Service Company Driller Drilling Service Company Drilling Service Cologistr/Office Tim Biggs / St. Louis Well Installed? T.D. Borehole Well Installed? Description Description Description Description Wall Installed? Description Description Description Description Wall Installed? Description Descr	Sta	rt/Fiaish D	ate				Site Name and I	ocation				
Drilling Service Company Driller Bruce Murphy Drilling Equipment LDH-807 Drill Rig, Large Diameter Auger Drilling Size/Type 24° OD Solid Auger WL-113 Background Drilling Background WL-113 Background WL-113 Background WL-113 Background Drilling Background Drilling Background Description WL-113 Background Description Desc	9/25	5/95			_		West Lake Lands	ill; Bridgeton, Mis	souri			
Driller Bruce Murphy Easting: 1069483.19 516469.95	Dril	ling Contr	actor				Boring Location	1:	Area l			
Bruce Murphy Drilling Equipment LDH-80T Drill Rig, Large Diameter Auger Sample Method Grab from Auger T.D. Borehole Well Installed? None Installed Description Description Description Description Description Description Description Description Description Description Description Description Description Description WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) None Background (0.01-0.04) None Background (0.01-0.04) WL-113 Background (0.01-0.04) None Background (0.01-0.04) WL-113 Background (0.01-0.04) None Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) None Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04)	Dril	ling Service	Comp	any			Ground Surface	Elevation:	467			
Drilling Equipment LDH-80T Drill Rig. Large Diameter Auger Tim Biggs / St. Louis	1						1					
LDH-80T Drill Rig, Large Diameter Auger Tim Biggs / St. Louis							Easting:					
Sample Method T.D. Borehole Well lastalled? None Installed None	1	•		F	··	 4		1	_			
24" OD Solid Auger Grab from Auger 45" None Installed			Kig, Li	arge L	Juanne		ethod			<u>, , ,</u>		
Description Description Description	1		uger							•		
WL-113 Background 0.0-42.5' Landfill Debris: trashy debris consisting of yard waste, wood, plastic, cloth, paper, wire, and metal: soil consisting of dark gray to grayish brown silty clay and very fine to medium-grained sand: dry to wet.	_							<u> </u>				
WL-113 Background 0.0-42.5' Landfill Debris: trashy debris consisting of yard waste, wood, plastic, cloth, paper, wire, and metal: soil consisting of dark gray to grayish brown silty clay and very fine to medium-grained sand: dry to wet.		1			-							
WL-113 Background 0.0-42.5' Landfill Debris: trashy debris consisting of yard waste, wood, plastic, cloth, paper, wire, and metal: soil consisting of dark gray to grayish brown silty clay and very fine to medium-grained sand: dry to wet.	epth (ft)	Sample ID# Geiger Reading (mR/hr)						Description				
WL-113 Background WL-113 Background WL-113 Background (0.01-0.04)	┝╾	<u> </u>	1-9-	<u>~</u>	_₹_							
WL-113 Background WL-113 Background (0.01-0.04)		WL-113	Backs	zroun	d	0.0-42.5' L	andfill Debris; tras	thy debris consistin	g of vard waste.			
WL-113 Background Backgro	5	5'	1	•		_		•	•	of		
10 10' (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) None Background (0.01-0.04) None Background (0.01-0.04) WL-113 Background (0.01-0.04) None Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04)						•	* ' - ' ' ' ' '					
WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) None Background (0.01-0.04) None Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-114 Background (0.01-0.04) WL-115 Background (0.01-0.04) None Background (0.01-0.04) None Background (0.01-0.04) @ 41' wet None Background 42.5-45.0' Native Alluvium: dark gray silty clay grading to very		1	Backs	groun	di	grained sand: dry to wet.						
15	10	10'	(0.01-	0.04)								
15												
WL-113 Background 20 20' (0.01-0.04) None Background (0.01-0.04) None Background (0.01-0.04) WL-113 Background (0.01-0.04) WL-113 Background (0.01-0.04) None Background (0.01-0.04) None Background (0.01-0.04) None Background (0.01-0.04) Background (0.01-0.04) @ 41' wet None Background 42.5-45.0' Native Alluvium: dark gray silty clay grading to very	١, [1	1 -	•								
20 20' (0.01-0.04) None Background (0.01-0.04) None Background (0.01-0.04) WL-113 Background (0.01-0.04) None Background (0.01-0.04) None Background (0.01-0.04) None Background (0.01-0.04) None Background (0.01-0.04) Background (0.01-0.04)	13	113	(0.01-	0.04)								
20 20' (0.01-0.04) None Background (0.01-0.04) None Background (0.01-0.04) WL-113 Background (0.01-0.04) None Background (0.01-0.04) None Background (0.01-0.04) None Background (0.01-0.04) None Background (0.01-0.04) Background (0.01-0.04)		WL-113	Backs	rour								
None Background (0.01-0.04) None Background (0.01-0.04) WL-113 Background (0.01-0.04) None Background (0.01-0.04) None Background (0.01-0.04) None Background (0.01-0.04) Background (0.01-0.04) @ 41' wet None Background 42.5-45.0' Native Alluvium: dark gray silty clay grading to very	20		1 -		1							
None Background WL-113 Background S5 35' (0.01-0.04) None Background Taken (0.01-0.04) None Background O Taken (0.01-0.04) Background A 10 Taken (0.01-0.04) D Taken (0.01-0.04) Watth wet Wet Alluvium: dark gray silty clay grading to very				<u>`</u>								
None Background (0.01-0.04)		None	Backg	rounc	ı							
WL-113 Background 35 35' (0.01-0.04) None Background Taken (0.01-0.04) @ 41' wet None Background 42.5-45.0' Native Alluvium: dark gray silty clay grading to very	25	Taken	(0.01-	0.04)						į		
WL-113 Background 35 35' (0.01-0.04) None Background Taken (0.01-0.04) @ 41' wet None Background 42.5-45.0' Native Alluvium: dark gray silty clay grading to very			1		ŀ							
WL-113 Background (0.01-0.04) None Background (0.01-0.04) @ 41' wet None Background 42.5-45.0' Native Alluvium: dark gray silty clay grading to very			1 -									
None Background	30	Taken	(0.01-	0.04)								
None Background					.				•			
None Background (0.01-0.04) @ 41' wet None Background 42.5-45.0' Native Alluvium: dark gray silty clay grading to very	7.0		1 -		- 1							
None Background 42.5-45.0' Native Alluvium: dark gray silty clay grading to very	35	32.	(0.01-	U.U4)						į		
None Background 42.5-45.0' Native Alluvium: dark gray silty clay grading to very		None	Dock-	- 0								
@ 41' wet None Background 42.5-45.0' Native Alluvium: dark gray silty clay grading to very	40	i	-		, }							
None Background 42.5-45.0' Native Alluvium: dark gray silty clay grading to very	7.0	· axcii	(0.014	v. <u>v+)</u>		@41'	wet					
		None	Backer	round	,]							
	45		_									

Radiological samples collected at 5 and 10 feet below ground surface; duplicate collected and analyzed for 5' sample; downhole logging indicated elevated gamma readings from 3.5 -4.0''.

Non-radiological samples collected at 45 feet below ground surface; priority

pollutant sample collected and analyzed.

Perched water not encountered during boring activities.

Groundwater encountered at 41 feet below ground surface.

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	S	oil l Lo	Bo og		ıg		'	MCIA Hai	r <u>en</u>		
		Bori	ng No).		Project No./Nan	ne		Page:		
1		WI	11	4		07.0803035.003	.002		1 of 1		
Sta	rt/Finish D			_		Site Name and I	ocation		·		
9/2:	5/95					West Lake Landi	fill; Bridgeton, Mi	souri			
Dri	lling Contr	actor				Boring Location		Area 1			
Dril	ling Service	Comp	any			Ground Surface	Elevation:	468.3			
Dri	ller					Northing:		1069391.53			
Bru	ce Murphy					Easting:		516338.57			
1	lling Equip						McLaren/Hart	-	!		
-	H-80T Drill	Rig, L	arge [)iame	T		Tim Biggs / St. L				
	Size/Type				Sample M		T.D. Borehole	Well Installed	?		
	OD Solid A	uger			Grab from	Augers	45'	None Installed			
~~	1	Τ"			Γ			·· <u>··</u> ·			
Depth (A)	Sample ID#	Geiger	Reading	(mR/hr)			Description				
5	WL-114 Background 0.0-40.0'					Landfill Debris: trashy debris consisting of yard waste, sood, plastic, cloth, paper, insulation, wire, and metal; soil assisting of dark gray to grayish brown clayey silt and very					
	None	Backs	zrourk	1	i	-	sand; dry to moist		у		
10	Taken	(0.01-				o inclinary and said, by to inote.					
		1									
	WL-114	Backg	rounc	i							
15	15	(0.01-	0.05)								
	WL-114	Backg									
20	20'	(0.01-	0.05)						;		
25	WL-114 25'	Backg (0.01-		1							
30	WL-114 30'	Backg									
		<u> </u>		_							
	WL-114	Backg	round						·		
35	35'	(0.01-	0.05)]					ı		
	WL-114	Backg	round	i							
40	40'	(0.01-	0.05)			·					
		l ·			40.0-45.0' <u>1</u>	lative Alluvium:	dark gray, silty, fi	ne to medium-			
	None	Backg			•	d sand; wet.					
45	Taken	(0.01-	0.05)		Boring	terminated @ 45	.0'				

Radiological samples collected at 5 and 15 feet below ground surface; downhole logging indicated elevated gamma readings from 4.0-5.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 41 feet below ground surface.

	\$	Soil	Во	rir	ıg			1	ACIA Har	rer
Log						/ / / /			Har	־ב
Boring No.						Project No /Na	ac .			Page:
			L-11			} -			l of l	
Sta	rt/Figisb			_		Site Name and I				
9/2	6/95					West Lake Landi	ill; Bridgetor	n, Mis	souri	
Dri	lling Con	tractor				Boring Location	ı:		Area I	
Dni	ling Servi	œ Com	pany			Ground Surface	Elevation:		468.9	
	ller					Northing:			1069298.98	
_	ce Murphy					Easting:	N - 1 7	7	516395.13	
	lling Equi H-80T Dri	-		Diame	ster Auger		Tim Biggs		Geologist/Office	
_	Size/Type		9-		Sample M	ethod	T.D. Boreb		Well Installed?	,
24*	OD Solid				Grab from		41'		None Installed	
Rec	narks:				γ					
Ê							Descript	ion		
Depth (ft)	Sample	Gelger	Reading	(mR/hr)		rescription				
ă	<u> </u>	1 5	<u>~</u>	<u> </u>	 					
	WL-115	Back	свтопи	1	0.0-34.0° L	andfill Debris: tras	hv debris co	nsistin	g of yard waste.	
5	5'		1-0.04)					•	tal;	
					1	onsisting of dark g	ray to grayis	h brov	vn clayey silt and	
10	WL-115	1	ground		silty sand; dry to moist.					
10	10,	(0.0)	1-0.04)							
	WL-115	Back	cground	1						
15	15'	1	1-0.04)							
	None		ground							
20	Taken	(0.01	-0.04)							
	WL-115	Rank	ground	.						
25	25'		(-0.04)	•						
	None	Back	ground	i						
0	Taken	(0.01	-0.04)							
				.						
35	WL-115		ground A (A)		34 0 41 01 1	Native Alluvium:	dark may a	iley 6	se to medium.	
	133	1(0.01	-0.04)			d sand; moist to w	-	nty, III	ic to inicultation	
	WL-115	Back	ground	. [0,411					
10_	40'	i	-0.04)		@ 40'	wet				
					_					
	None	None	;	ŀ						
5_	Taken	Take	n		Boring term	inated @ 41.0'				

Radiological samples collected at 5 and 40 feet below ground surface.

Non-radiological samples collected at 5 and 38 feet below ground surface; contingency sampling.

Perched water not encountered during boring activities.

Groundwater encountered at 40 feet below ground surface.

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Boring !	No.		Project No./Name			Page:	
WL-1	16		07.0803035.003.002 1 of 1			l of l	
Start/Finish Date			Site Name and I	ocation			
9/26/95			West Lake Landi	ill; Bridgeton, Mi	ssouri	<u> </u>	
Drilling Contractor			Boring Location	1:	Area 1		
Drilling Service Company			Ground Surface	Elevation:	474.3		
Driller			Northing:		1069083.49		
Bruce Murphy			Easting:		516160.60		
Drilling Equipment LDH-80T Drill Rig, Large	Diame	ter Auger	McLaren/Hart Geologist/Office Tim Biggs / St. Louis				
Bit Size/Type		Sample M	Method T.D. Borehole Well Installe		Well Installed	?	
24" OD Solid Auger		Grab from	Augers	20'	None installed		
Remarks:		T					
Depth (A) Sample ID # Geiger Reading	(mR/hr)			Description			
WL-116 Backgrou	ınd	0.0-20.0' <u>L</u> a	andfill Debris: tras	thy debris consisti	ng of yard waste,		
5 5' (0.01-0.0	4)	wood	d, plastic, cloth, paper, and metal; soil consisting of dark				
WL-116 Backgrou	ınd	gray s	silty clay; dry to w	et.			
10 10' (0.01-0.0	4)	@ 8' \	wet				
None Backgrou Taken (0.01-0.0							
None None 20 Taken Taken		Rocing shar	ndoned @ 20.0'				

Radiological samples collected at 5 and 10 feet below ground surface; duplicate collected and analyzed for 5' sample.

Non-radiological samples not collected during boring activities.

Perched water encountered at 8 feet below ground sruface.

Groundwater not encountered during boring activities.

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Star	√Finish D					Site Name and I				
9/27	7/95					West Lake Landi	fill; Bridgeton, Mis	souri		
Dril	ling Contr	actor				Boring Location	1:	Area I		
Drill	ling Service	Comp	апу			Ground Surface	Elevation:	467.6		
Dril	ler					Northing:		1069237.40		
_	æ Murphy					Easting:	γ	516221.33		
	ling Equip		_				McLaren/Hart	_		
	I-80T Drill Size/Type	Kig, L	arge L	lame		-shood	Tim Biggs / St. L. T.D. Borebole	Weil Installed?		
l.	OD Solid A	uger			Sample Mo Grab from		41'	None Installed		
	arks:				10.30 10.11			1		
Depth (A)	Depth (ft) Sample ID # Geiger Reading (mR/hr)					Description				
	WL-117 Background 0.0-37.0'L				0.0.17.01	- JEN Dahain				
5	WL-117 5'	1	groun. -0.04)		B.	andfill Debris: trashy debris consisting of yard waste, , wire, insulation, plastic, cloth, paper, and metal; soil				
<u> </u>	3	(0.01	-0.04)	_	consisting of dark gray silty clay; dry to wet.					
	WL-117	Back	ground	j			,,			
10	10'	(0.01-	0.04)							
	Ì									
	WL-117		ground							
15	15'	(0.01-	0.04)							
	None	Backe	ground							
20	Taken	(0.01-	-							
		7(0.01-	J,UT)							
	WL-117	Backs	round	l l	!					
25	25'	(0.01-	,							
,	WL-117	Backe	round							
30	30'	(0.01-	0.04)							
İ				ļ						
	WL-117	1 -	round							
35	35'	(0.01-	0.04)							
		D			27.0 (1.0)	lasina Allenine	dada75 - C	- 4		
40	WL-117 40'	Backg			37.0-41.0' Native Alluvium: dark gray, silty, fine to medium- grained sand; moist to wet.					
••-	40	(0.01-	U.U4)		grauto	a Pathat (moist to M	Cl.			
		i		1					į	
į	None	None		Ì	@ 40'	wet				

Radiological samples collected at 10 and 25 feet below ground surface; downhole logging indicated elevated gamma readings from 6.0-7.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 40 feet below ground surface.

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			ing N			Project No./Name Page:			Page:	
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Star	√Finish l	Date				Site Name and I	Location			
9/28	/95					West Lake Landi	ill, Bridgeton, Mi	ssouri		
Dril	ling Con	ractor				Boring Location	1:	Area I		
Drill	ing Servi	æ Com	pany			Ground Surface	Elevation:	465.8		
Dril	ler					Northing:		1069411.09		
Bruc	E Murphy					Easting:		516304.95		
Drill	ling Equi	procest					McLaren/Hart	•		
LDH	1-80T Dri	ll Rig, [arge [Diame	ter Auger	Tim Biggs / St. Louis				
	Size/Type				Sample M		T.D. Borehole	Weil Installed	?	
	OD Solid	Auger			Grab from	Augers	15'	None Installed		
Rem	arks:				, —					
Depth (A) Sample ID # Geiger Reading (mR/hr)							Description			
5	WL-118 5'		cgroun			andfill Debris: tras	-	•		
		1				silty, plastic clay,	•	J 12 21 21 2	-	
	WL-118	1	groun							
10	10'	(0.01	-0.04)							
15	WL-118	•	:ground :-0.04)		Boring term	ninated @ 15.0'				

Radiological samples collected at 5 and 10 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

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	5	oil Bori Log	ng			MCIA Hai				
	<u> </u>	Boring No.	 	Project No./Nan		Page:				
L		WL-119		07.0803035.003.002 1 of 1						
Star	√Finish D	ate		Site Name and I	ocation					
9/29				West Lake Lands	ill; Bridgeton, Mi	ssouri				
Dril	ling Contr	actor		Boring Location		Area i				
	ling Service	Сотрапу		Ground Surface	Elevation:	477.4				
Dril				Northing:		1069031.14				
	e Murphy			Easting:	Mal ama/Ham	516289.26				
ł	ling Equip I-80T Drill	ment Rig, Large Dian	neter Auger		Tim Biggs / St. L	Geologist/Office .ouis				
	Size/Type	5- 	Sample M	ethod	T.D. Borehole	Weil Installed	?			
24" (OD Solid A	uger	Grab from		50'	None installed				
Rem	arks:	- · 								
Depth (ft)	Sample ID#	Geiger Reading (mR/hr)		Description						
5	WL-119	Background (0.01-0.04)	l .	andfill Debris: trashy debris consisting of yard waste, ation, wire, wood, plastic, shingles, cloth, carpet, paper,						
				glass, and metal; soil consisting of light brown to dark gray,						
	None	Background	silty,	plastic clay to sand	plastic clay to sandy silt; dry to moist.					
10	Taken	(0.01-0.04)	4							
15	WL-119 15'	Background (0.01-0.04)								
20	None Taken	Background (0.01-0.04)								
-~	. 4.1.11	(0.01-0.04)	1							
25	WL-119 25'	Background (0.01-0.04)								
	None Taken	Background (0.01-0.04)								
	None	Background		-						
35	Taken	(0.01-0.04)	4							
	None	Background								
	Taken	(0.01-0.04)	1							
	WL-119	Background				·				
45	45'	(0.01-0.04)	7	lative Alluvium: d	lark gray, silty, fir	ne to medium-				
	WL-119	Background	graine	d sand; moist.			ł			
1	1	(0.01-0.04)	Boring term	inated @ 50.0"			}			

Radiological samples collected at 5 and 50 feet below ground surface; duplicate collected and analyzed for 50' sample.

Non-radiological samples collected at 50 feet below ground surface; priority pollutant and priority pollutant duplicate sample collected and analyzed.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

	S	oil Borir Log	ıg		1	MCIA Hai	r <u>en</u>			
		Boring No.		Project No/Nan	ne		Page:			
		WL-120		07.0803035.003			l of l			
Star	rt/Finish D			Site Name and I			. 0. 1			
9/29				West Lake Landfill; Bridgeton, Missouri						
-	lling Contr	actor		Boring Location		Area !				
ı	ling Service			Ground Surface		474.7				
Dril		- Jonepan,		Northing:		1069053.64				
Bru	ce Murphy			Easting:		516846.57				
	ling Equip	ment		<u> </u>	McLaren/Hart (
i		Rig, Large Diame	acr Auger		Tim Biggs / St. L.	-				
Bit :	Size/Type		Sample M	ethod	T.D. Borehole	Weil Installed?				
	OD Solid A	uger	Grab from	Augers	52'	None Installed				
Ren	arks:		,							
Depth (ft)	Sample 1D#	Geiger Reading (mR/hr)			Description					
5	WL-120	Background (0.01-0.04)	i –	Landfill Debris: trashy debris consisting of yard waste, sulation, rubber, wire, wood, plastic, shingles, cloth, carpet,						
			4		soil consisting of l	• .				
	None	Background	gray,	silty, plastic clay t	o silty sand; dry to	wet.				
10	Taken	(0.01-0.04)								
15	None Taken	Background (0.01-0.04)								
	WL-120	Background								
20	20'	(0.01-0.04)								
	WL-120	Background								
25	25'	(0.01-0.04)								
	None	Background	ļ							
30	Taken	(0.01-0.04)					1			
	None	Background								
35	Taken	(0.01-0.04)								
	ļ.,]_								
40	None	Background					}			
40	Taken	(0.01-0.04)								
	Nor-	Dooles								
15	None	Background								
45	Taken	(0.01-0.04)		•						
50	WL-120 50'	Background		·						
50	טכ	(0.01-0.04)								
	None	Background	0	·10 62 61			1			
55	Taken	(0.01-0.04)	Boring term	inated @ 52.0'						

Radiological samples collected at 5 and 50 feet below ground surface; duplicate collected and analyzed for 50' sample.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Area 2 Boring Logs

	S	oil L	Bo og	·····	ıg			M <u>claren</u> Hart		
			ing No			Project No./Na	me	Page:		
Ĺ		W	L-20	1		07.0803035.003	.002	1 of 1		
Star	√Fiaisb D	ate				Site Name and	Location			
7/31/95						West Lake Land	fill; Bridgeton, Mi	issouri		
Dril	ling Conti	actor				Boring Location	o:	Area 2		
Hart	Environm	ental D	rilling			Ground Surface	Elevation:	444		
Dril	ler					Northing:	Northing: 1070378.84			
Мах	Tinnin	_				Easting:		514177.60		
Dril	liog Equip	ment				McLaren/Hart Geologist/Office				
CM	E-55 Drill	Rig, Ho	ilow S	tem.	Augers	Tim Biggs / St. Louis				
Bit S	Size/Type				Sample M	ample Method T.D. Borehole Well Installed?		Weil Installed?		
	" ID; 8 1/4	" Hole	:		5' Cominue	ous Sampler	15'	None Installed		
Depth (ft)	arks:	Gelger	Reading	(mR/hr)			Description			
<u> </u>	8 2	<u>↓ĕ</u> _	<u>-≅</u> _	<u> </u>						
	WL-201	Back	ground	ŧ	0 0-15 0' 8	Jative Alluvium: o	nlive honum cilt an	d alternating layers		
5	5'	1	-0.07)		-			• • • • • • • • • • • • • • • • • • • •		
		1 (0.03	3.01)			of very fine-grained sand and slightly clayey silt grading to fine to medium-grained sand; dry to wet				
	WL-201 Background @ 8"					- 0	. ,			
10	10'	1	- -0.07)							
15	WL-201 15'	Back	ground -0.07)		Boring term	ninated @ 15.0°				

Radiological samples collected at 5 and 15 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 8 feet below ground surface.

		S	oil L	Bo og		ıg			M ^C La Hai	ren
			Bor	ing N	0.		Project No/Name P			Page:
			_WI	<u>L-20</u>)2		07.0803035.00	3.002		l of l
Star	t∕Fia	ish D	te				Site Name and	Location		
7/31	7/31/95						West Lake Land	Ifill; Bridgeton, M	issouri	
Dril	Drilling Contractor						Boring Location	a:	Area 2	
Hart	Hart Environmental Drilling						Ground Surfac	e Elevation:	444.9	
Dril	Driller						Northing:		1070102.59	
Мах	Max Tinnin						Easting: 514488.27			
	Drilling Equipment CME-55 Drill Rig, Hollow Stem Augers						McLaren/Hart Geologist/Office Tim Biggs / St. Louis			
ı .	Size/1					Sample M	ample Method T.D. Borehole Well Installed?			
			" Hole			5' Continuous Sampler 15' None Installed				
Rem	arks	<u> </u>	T -			_				
Depth (ft)	Sample	# QI	Gelger	Reading	(mR/hr)			Description		
5	WL-	202	1 '	groun -0.07)			lative Alluvium: ed sand; dry to we	•	n silt grading to fir	nc
10	WL-	202	Back;	•		@ 10'	' wet			·
15	WL- 15'	202	Backs (0.05-	•		Boring term	uinated @ 15.0°	_		

Radiological samples collected at 5 and 15 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 10 feet below ground surface.

	S	oil		* * * * * * * * * * * * * * * * * * * *	ıg			M <u>Clarer</u> Hart		
		ابل	og					IIail		
		Bori	ing No	D.		Project No./Name Page:				
		W	L-20)3		07.0803035.003	3.002	1 of 1		
Star	√Fiaish D	ate			<u>, </u>	Site Name and	Location			
7/31	/95					West Lake Land	fill; Bridgeton, Mi	ssouri		
Drii	ling Contr	actor				Boring Locatio	n:	Area 2		
Hart	Environme	ental D	rilling			Ground Surface	e Elevatioa:	444.7		
Dril	ler					Northing:		1069934.54		
Max	Tinnin					Easting: 514237.48				
	ling Equip					McLaren/Hart Geologist/Office				
	E-55 Drill F	lig, Ho	ollow S	item.		Tim Biggs / St. Louis				
	ize/Type				Sample M		T.D. Borebole	Well Installed?		
	" ID; 8 1/4	" Hole			5' Continue	ous Sampler	15'	None installed		
Keu	INFRS:	$\overline{\mathbf{I}}$			1					
Մշբմի (Ո)	Sample 1D#	Gelger	Reading	(mRVhr)			Description			
	WL-203	Back	groun	d	0.0-15.0' <u>N</u>	lative Alluvium:	lark brwon to silt (grading to light brown,		
5	5'	(0.05	-0.07)		fine-g	rained sand; dry t	o wet,			
	WL-203	Back	groun	i						
10	10'	(0.05	-0.07)							
					@ 11	wet				
	WL-203	1 '	ground	- 1						
15	15'	(0.05-	-0.07)		Boring term	ninated @ 15.0'				

Radiological samples collected at 5 and 15 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 11 feet below ground surface.

	C	oil	R۸	rir	10			MCIACE	$\overline{\neg}$	
		ejeje sjeje	og.		5	1///		Mclarer Hart	=	
			<u></u>	·						
			ing No			Project NoJNa		Page:		
$ldsymbol{oxed}$		WI	<u>L-20</u>)4		07.0803035.003.002 1 of 1				
Sta	rt/Fioisb D	ate				Site Name and	Location			
8/1/	95					West Lake Land		Missouri		
Dri	lling Contr	2 C10F				Boring Location	a:	Area 2		
Han	Environm	ntal D	rilling	<u> </u>		Ground Surface	: Elevation:	443.3		
Dril	ler					Northing:		1069685.83		
Max	Tinnin					Easting:		514205.01		
Dril	ling Equip	meat					McLaren/Hart Geologist/Office			
СМ	E-SS Drill F	lig, Ho	llow S	Stem	Augers		Tim Biggs / S			
	Size/Type				Sample M		T.D. Borebo			
_	** ID; 8 1/4	* Hole			5' Continue	ous Sampler	25'	S-1		
Ren	arks:				1					
Depth (ft)	Sample ID#	Gelger	Reading	(mR/hr)			Descripcio	oa ·		
	WL-204	1	groun		0.0-25.0° 1	<u> Vative Alluvium</u> : c	olive brown cla	yey silt grading to dark		
5	5'	(0.03	-0.05)		brown	n, fine-grained san	d; moist to we	L		
	WL-204	1	groun		@ 8"	wet				
10	10,	(0.03	0.05)							
15	WL-204 Background 5 15' (0.03-0.05)								i	
	WL-204		ground				•			
20	20'	(0.03-	0.05)							
26	WL-204	Backs	•	1	Davis - · ·	singered (C. 35 Ot				
25	25'	(0.03-	U.U5)		Boring term	unated @ 25.0'				

Radiological samples collected at 5 and 25 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 8 feet below ground surface.

	~	on a subsection fair				1010	600		
	5	oil Borii Log	1g			MCIA Hai	<u>t</u>		
		Boring No.	<u> </u>	Project No./Nat	ne		Page:		
		WL-205		07.0803035.003	.002		I of I		
Sta	rt/Finish D			Site Name and I	Location	··· · · · · · · · · · · · · · · · · ·	·		
1 -	/95 / 8/3/95			West Lake Landfill; Bridgeton, Missouri					
Dri	lling Coun	ractor		Boring Location		Area 2			
1	•	ental Drilling		Ground Sarface		443.2			
Dri	ller			Northing:		1069698.26			
Ma	x Tinnin			Easting:		514212.18			
Dri	lling Equit	mest			McLaren/Hart	Geologist/Office			
СМ	E-55 Drill	Rig, Hollow Stem	1		Tim Biggs / St. L				
	Size/Type		Sample M		T.D. Borehole	Weil Installed?			
	4" ID: 8 1/4 narks:	4 Hole	15' Continue	ous Sampler	52'	I-2			
Kei	HRFKS:		1						
	1		1						
Ξ	1	- es -	İ		Description				
Depth (A)	Sample 1D#	Gelger Reading (mR/hr)							
ق	Samı 10#	<u> </u>	ļ						
			1						
	WL-205	Background			olive brown silty cl		rish		
5	5'	(0.05-0.07)	brow	n, coarse-grained s	and with gravel; d	ry to wet.			
	WL-205	Background	@8	wet					
10	10,	(0.05-0.07)							
<u> </u>	 	(4,55 5.61)	1						
	WL-205	Background							
15	15'	(0.05-0.07)	İ		-				
		1	1						
	WL-205	Background	1						
20	20'	(0.05-0.07)	ļ						
ł	l	L							
26	WL-205	Background							
25	25'	(0.05-0.07)							
	None	Background							
30	Taken	(0.05-0.07)							
						-			
	WL-205	Background	ļ						
35	32'	(0.05-0.07)					[
1	WL-205	Background					Į		
40	37	(0.05-0.07)					1		
	100 200	Danker					1		
15	WL-205	Background					Ĭ		
45	42'	(0.05-0.07)					1		
	WL-205	Background							
50	47	(0.05-0.07)					1		
-									
	WL-205	Background							
55	52'	(0.05-0.07)	Boring term	inated @ 52.0'					

Radiological samples collected at 5 and 15 feet below ground surface.

Non-radiological samples not collected.

Perched water not encountered during boring activities.

Groundwater encountered at 8 feet below ground surface.

	S	oil Borii	10			MACIA	arer
		Log	-8		61	MCIA	re
_		Boring No.		Project NoJN	ame		Page:
}		WL-206		07.0803035.00	3.002		1 of 2
Star	rvFioist D	ate		Site Name and	Location		
8/16	5/95			West Lake Lar	dfill; Bridgeton	, Missouri	
Dri	lling Contr	ractor		Boring Locati		Area	2
Har	t Environm	ental Drilling		Ground Surfa	ce Elevation:	444	.4
Dri	ller			Northing:		1070194.3	31
_	c Tinnin			Easting:	· , · · · · · · · · · · · · · · · · · ·	514549_5	50
,	lliog Equip				1	art Geologist/Offi	ce
_		Rig, Hollow Stern			Tim Biggs /		
	Size/Type 4" ID; 8 1/4	19 Uala	Sample M	lethod ous Sampler	T.D. Boreho	D-6	:d?
_	arks:	. note	13 Continu	ous Sampler	1109	10-0	
		T	T				
Depth (A)	Sample ID#	Gelger Reading (mR/hr)			Descripti	on	
•	WL-206	Background	1			ayey silt grading to	
5	5	(0.02-0.04)	Sura'Ar	PI DLOMIT COST.20	-Riamod saud a	nd gravel; dry to we	il.
	WL-206	Background					
10	10.	(0.02-0.04)					
			@11	' wet			
	WL-206	Background	}				
15	15'	(0.02-0.04)]		-		
	l						
	None	None	ł				
20	Taken	Taken					
	None	None	(
25	Taken	Taken					
		1.1.00	Ì				
	None	None					
30	Taken	Taken					
-							
	None	None					
35	Taken	Taken					
40	None	None					
40	Taken	Taken					
	None	None					
45	Taken	Taken					
	None	None					
50	Taken	Taken					
	None	None					
55	Taken	Taken					
- 1		N I					
- 1	None	None					
50	Taken	Taken				•	
Į	Nore	None					
ا ہے	None	None					
55	Taken	Taken					

.



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			Lo)g			V \ \ \ \ \			Har	<i>ב</i>	
			Bori	·~·		<u> </u>	Project No./Na	ne			Page:	
			WI	<u>-</u> 20	6		07.0803035.003.002 2 of 2					
Sta	rt/Finist	Da	te				Site Name and	Location				
8/1	6/95						West Lake Landfill; Bridgeton, Missouri					
Dri	lling Co	atra	ctor				Boring Location	1:		Area 2		
Har	t Enviro	nmer	ntai Dr	illing			Ground Surface	Elevation:		444,4		
Dri	ller						Northing:			1070194.31		
	fax Tinnin						Easting:	· · · · · · · · · · · · · · · · · · ·		514549.50		
1	lling Eq	-						1		Geologist/Office		
	E-55 Dri		ig, Hol	low S	item .	7		Tim Biggs /		T		
	Size/Typ		II.			Sample M		T.D. Boreb	ole	Well Installed?		
_	1/4" ID; 8 1/4" Hole 5' Conti						ous Sampler	[109'		D-6		
_	DEFKS:					T						
Depth (ft)	Sample ID # Gelger Reading (mR/hr)							Descript	tios			
	None		None			65.0-109.0	5.0-109.0' Native Alluvium: olive brown clayey silt grading to					
70	Taken		Taken	<u> </u>		grayish brown, coarse-grained sand and gravel; dry to wet.						
~-	None		None									
75	Taken		Taken									
	None		None									
80	Taken	- 1	Taken					-				
	None		None									
85	Taken		Taken									
	None		None									
90	Taken	_	Taken									
					ļ							
95	None Taken	- [None Taken		.							
, ,	Laken	+	Taken		\dashv							
	None		None			•						
100	Taken	- 1	Taken									
<u> </u>		7			{							
	None]1	None]							
05	Taken]·	Taken									
	None	[1	None									
10	Taken	-	Taken			Auger refus	al @ 109.0' (bedro	ck)				

Radiological samples collected at 5 and 10 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 11 feet below ground surface.

13.5						4010	600		
	 5	oil Borin	ıg	XXX		ycla Hai			
		Log				Hai	-[
		Boring No.		Project No./Nan	ne		Page:		
		WL-207		07.0803035.003	.002		1 of 1		
Ster	√Fioisb D	ate		Site Name and Location					
8/18	/95			West Lake Landfill; Bridgeton, Missouri					
Dril	ling Contr	actor		Boring Location: Area 2					
Hart	Environme	ental Drilling		Ground Surface	Elevation:	444.5			
Dril				Northing:		1070743.05			
-	Tinnin .			Easting:	24-1	514299.87			
ŧ	ling Equip F-55 Dall B	ment Lig, Hollow Stem /	Augers		McLaren/Hart (Tim Biggs / St. L	_			
	Size/Type	dg, Hollow Stall /	Sample M	ethod	T.D. Borehole	Well Installed?			
1	ID; 8 1/4	" Hole		ous Sampler	50'	1-7			
Rem	arks:	·····							
	[1						
2	1				Description				
Depth (ft)	픮	Gelger Reading (mR/hr)	 		Description				
Pep	Sample ID#	Gelger Reading (mR/hr)							
	WL-207	Background	0.0-50.0' 💆	lative Alluvium: s	lightly clayey, ver	y fine-grained san	d		
5	5'	(0.02-0.04)	gradir	ng to gray coarso-g	grained sand with g	gravel; dry to wet			
	110 200	Don't							
10	WL-207	Background (0.02-0.04)	000						
10	10	(0.02-0.04)	@ 9.5	wet					
	WL-207	Background							
15	15'	(0.02-0.04)	l		-				
	WL-207	Background							
20	20'	(0.02-0.04)							
	117 207								
25		None Taken							
2.5	25'								
	WL-207	None Taken					}		
- 1	30'						ļ		
			-						
- 1	WL-207	None Taken							
35	35'						ĺ		
	U/I 207	None Taken					1		
ŀ	WL-207 40'	INOUE TRIKED			,		1		
]		
	WL-207	None Taken					İ		
- 1	45'								
							-		
	WL-207	None Taken					}		
50	50.		Boring termi	nated @ 50.0"		····			

Radiological samples collected at 5 and 10 feet below ground surface. Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 9.5 feet below ground surface.

		S	oil	· · · · · · · · · · · · · · · · · · ·	• • • • • • • • • • • • • • • • • • • •	ıg		1	/	MCIA Hai	ren
			L(og						Паі	L
			Bori	ng No) .		Project No./Na	me			Page:
			WI	L-20	8		07.0803035.003.002 1 of 1				
Sta	rt/Fiais	b D	a (c				Site Name and Location				
8/23	1/95						West Lake Land	fill; Bridgetor	ı, Mis	souri	,
Dri	ling Co	atr	actor				Boring Location	1:		Area 2	
Dril	Drilling Service Company						Ground Surface	Elevation:		474.8	
Dril	Driller						Northing:			1070141.19	
Bru	Bruce Murphy						Easting:			514752.42	
•	Drilling Equipment LDH-80T Drill Rig, Large Diameter Ar							McLaren/F Tim Biggs /		Geologist/Office ouis	
Bit :	Bit Size/Type Sample						ethod	T.D. Boreh	ole	Weil Installed	?
24"	24" OD Solid Auger Grab fro						Augers	37		None Installed	
Ren	arks:					,					
Depth (A)	Sample	# QI	Gelger	Reading	(mR/hr)	Description					
5	WL-20	08		ground -0.05)		0.0-28.0' Landfill Debris: trashy debris consisting of wood, brick, paper, concrete, insulation, metal, plastic, glass, and wire; soil					
	WL-20	0 0	Bask	zrounc		l ~	sting of dark gray dry to moist.	silty clay to n	nediu	m-grained sand, a	ınd
10	10'	70	(0.03-			IOLA.	wy w moisc				
15	WL-20	08	Backs (0.03-	zround		_	soil discolored; p	etroleum odo	r, OV	M readings great	er
	WI20	18	Backs	mound	1	uman i	A V OSCKBIOGING				
20	20'		(0.03-	-		@ 20°	metal container v	rith petroleum	odor	and residue: OV	ſΜ
			(-			•	gs greater than 10	•			
	WL-20)8	Backg	round							
25	25'		(0.03-	0.05)		@ 25'	OVM readings gr	eater than 10	X ba	ckgound.	
									<u> </u>		
20	WL-20	8	Backg				Native Alluvium:			sandy, silty plast	ic
30	30.		(0.03-	U.U3)		ciay g	rading to fine-gra	nea sana; mo	ısı		
	WL-20	8(Backs	round							
35	35'	-	(0.03-	•							
-	WL-20	8	Backg								
10	37'		(0.03-	0.05)		Boring term	inated @ 37.0*				

Radiological samples collected at 5 and 9 feet below ground surface.

Non-radiological samples collected at 15, 20 and 28 feet below ground surface; contingency sampling.

Perched water not encountered during boring activities.

	S	oil L	Bo og	·····	ıg	11	1	Mc <u>laren</u> Hart		
		Bori	ng N	D.		Project No./Nas	ne	Page:		
L		WI	20	9		07.0803035.003.002 [1 of 1				
Star	rvFinish D	ate				Site Name and I	ocation			
8/24	/95					West Lake Landf	ill; Bridgeton, M	issouri		
Dri	lling Coun	ractor				Boring Location		Area 2		
-	ling Servic	е Сотр	aux			Ground Surface	Elevation:	467.4		
Dril						Northing:		1070492.55		
_	∞ Murphy					Easting:		514686.34		
	ling Equit {-80T Dril		1000 [)iem	Anger		McLaren/Hart Tim Biggs/St	t Geologist/Office		
	Size/Type	Mg, L	nge t	<u> </u>	Sample M	ethod	T.D. Borehole			
	OD Solid A	Auger			Grab from		30'	None Installed		
-	arks:									
Depth (ft)	Sample 1D#	Gelger	Reading	(mR/hr)			Description	· · · · · · · · · · · · · · · · · · ·		
5	WL-209 5'	1.0-5	.3		concr	ete, insulation, me	tal, wood, plastic	ing of rubber, brick, s, glass, and wire; soil		
10	WL-209	0.8-1.	3		J	sting of dark gray of dry to moist.	clayey silt to fine	-grained sand, and		
15	WL-209 1 <i>5</i> '	Backs (0.05)	4	1			-			
20	WL-209 20'	Backs (0.05)	•	ı						
25	WL-209 25'	Backg (0.05)	•	•						
30	WL-209 Background 28.0-30.0'					Native Alluvium: o		medium-grained		

Radiological samples collected at 5 and 25 feet below ground surface; duplicates collected and analyzed; downhole logging indicated elevated gamma levels from 0.0-7.0°.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

	S	oil Borir	19			ACIE	ren		
		Log	•			M ^C La	E		
Γ		Boring No.		Project NoJNa	me		Page:		
1		WL-210		07.0803035.003	.002		1 of 1		
Sta	rvFiaish D	ate		Site Name and Location					
8/2:	5/95 / 8/28/	95		West Lake Land	fill; Bridgeton, Mi	ssouri			
Dril	ling Contr	actor		Boring Location	a:	Area 2			
Dril	ling Service	: Company		Ground Surface	: Elevation:	477.8			
Dril	ler			Northing:		1069775.15			
Bru	∞ Murphy			Easting:		514811.55			
Dril	ling Equip	ment			McLaren/Hart	Geologist/Office	<u> </u>		
LD	1-80T Drill	Rig, Large Diam	ter Auger		Tim Biggs / St. L	ouis			
•	Size/Type		Sample M		T.D. Borehole	Well Installed	?		
	OD Solid A	uger	Grab from	Augers	53'	None installed			
Ken	iarks:		 						
Depth (A)	Sample 1D#	Gelger Reading (mR/hr)			Description				
	WL-210	0.2-3.0	0.0-53.0 Landfill Debris: trashy debris consisting of wood, plastic,						
5	5'		4		ard waste, cloth, m	_			
		B- 1 4	1	-	gray to brown silt a	ind fine-grained s	and,		
10	None Taken	Background	and c	rushed rock; dry to	o wet.	•			
10	laken	(0.2)	0.46	01/14 condition con	eater than 10X bac	de auno o al			
	WL-210	Background	V0	O vivi reamings gr	cater than 10% oat	w Rioniur			
15	15'	(0.2)	@ 15°	soil discolored: p	etroleum odor, OV	/M readings			
		1		rthan 10 X backs	-				
	WL-210	Background							
20	20'	(0.2)							
25	WL-210 25'	Background (0.2)							
30	WL-210 30'	Background (0.2)							
	WL-210								
35	35'	Background (0.2)							
رر		1/4-1							
	WL-210	Background							
40	40'	(0.2)							
	None	None							
45	Taken	Taken							
	None	None	@ 46'	wet					
50	Taken	Taken							
							_		
	None	None	53.0' Native	Alluvium; dark g	gray, slightly sand	y, silty, plastic			
55	Taken	Taken	clay, v	vet. Boring termin	nated @ 53.0'				

Radiological samples collected at 5 and 40 feet below ground surface; duplicates collected and analyzed; downhole logging indicated elevated gamma readings from 0.0-13.0'.

Non-radiological samples collected at 15 feet below ground surface; contingency sampling. Perched water not encountered during boring activities.

Groundwater encountered at 46 feet below ground surface.

	S	oil Borin Log	ıg		1	MCIA Hai	ren		
		Boring No.		Project No./Nar	ne		Page:		
		WL-211		07.0803035.003	.002		l of l		
Sta	rt/Fiaisb D	a(c		Site Name and I	Site Name and Location				
8/28	3/95	•		West Lake Lands	fill; Bridgeton, Mis	souri			
Dri	lling Coutr	actor		Boring Location	1:	Area 2			
Dril	ling Service	Company		Ground Surface	Elevation:	475.3			
Dril	ller			Northing:		1070046.08			
Bru	ce Murphy			Easting:		514684.07			
	ling Equip				McLaren/Hart	*			
		Rig, Large Diame	1		Tim Biggs / St. L				
	Size/Type		Sample M		T.D. Borehole	Well Installed:	?		
	OD Solid A	uger	Grab from	Augers	128	None installed			
Depth (ft)	Sample 1D#	Geiger Reading (mR/hr)							
ă	Ø ⊆ WL-211	Background	0.0-25.0° L	andfill Debris: tras	shy debris consistir	eg of wood, plasti			
5	5'	(0.4)	paper	r, rubber, metal, and concrete; soil consisting of grayish-					
10	WL-211	Background (0.4)		n sandy and silty clay to coarse-grained sand; dry to wet.					
15	WL-211 15'	Background (0.4)	()		greater than 10 X	rack & out of			
20	WL-211 20'	Background (0.4)							
25_	WL-211 25'	Background (0.4)	@ 23.						
	WL-211	Background	sand;	wet.	grayish brown, fin	to coarse-graine	xd		
30	30'	(0.4)	Boring term	inated @ 28.0'					

Radiological samples collected at 5 and 25 feet below ground surface; downhole logging indicated elevated gamma readings from 0.0-7.5' and 9.0-10.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 23.5 feet below ground surface.

	S	oil L	Bo og	•••••	ıg		1	MCIA Hai	r <u>en</u>	
		Bor	ing No	٠.		Project No Nan	пе		Page:	
		W]	L-21	2		07.0803035.003	.002		1 of 1	
Sta	√Finish D	ate				Site Name and I	ocation			
8/28	1/95					West Lake Lands	fill; Bridgeton, Mis	souri		
Dri	ling Contr	ector				Boring Location	ı:	Area 2		
Dril	ling Service	e Comp	запу			Ground Surface	Elevation:	472.9		
Dril	ler					Northing:		1070025.86		
Bru	∞ Murphy					Easting:	,	514973.26		
	ling Equip 1-80T Drill		arge [)iam	eter Auger		McLaren/Hart (Tim Biggs / St. L	•		
Bit:	Size/Type				Sample M	ethod	T.D. Borehole	Weil Installed!	?	
	OD Solid A	luger			Grab from	Augers	30'	None Installed		
Ren	arks:	1								
Depth (A)	Sample 1D#	Gelger	Reading	(mR/hr)			Description			
_	WL-212	1	groun		1 -	andfill Debris: trashy debris consisting of wood, plastic,				
5	5'	(0.03	-0.05)		4	, paper, rubber, insulation; soil consisting of dark gray ciay, silt, and very fine-grained sand, and crushed rock;				
	WL-212	Back	ground	í	1	moist.	mic-gramed sand,	and crustied fock	•	
10	10'	į.	-0.05)		_, _					
15	WL-212 15'	1	ground -0.05)	ı			-			
	WL-212	1	ground	ł						
20	20'	(0.03	-0.05)							
	None	1 '	stonuq							
25	Taken	(0.03	0.05)							
ļ	WL-212	, -	ground				lark gray silt gradi	•		
30	28' .	(0.03-	0.05)	لــــا	graine	ed sand; moist. Bo	ring terminated @	30.0'		

Radiological samples collected at 5 and 10 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

	S	oil L	Bo og		ıg		1	yc <u>ıaren</u> Hart		
Ë		Bor	ing No	۵.	<u></u>	Project Nó:/Na	me	Page:		
		W	L-21	3		07.0803035.003.002 1 of 1				
Sta	rt/Finish D	ate				Site Name and	Location			
8/29	9/95				<u>.</u>	West Lake Land	fill; Bridgeton, Mi	ssouri		
Dri	lling Contr	actor				Boring Locatio	o:	Area 2		
Dril	ling Service	Comp	залу			Ground Sarfac	e Elevation:	472.3		
Dri	ller					Northing:		1070223.38		
_	∞ Murphy					Easting:	,	514947.61		
	lling Equip 1-80T Órill		arge ()iam	ster Auger		McLaren/Hart Tim Biggs / St. L	Geologist/Office ouis		
Bit :	Size/Type				Sample M	ethod	T.D. Borehole	Weil Instailed?		
24"	OD Solid A	luger			Grab from	Augers	25'	None installed		
Ren	arks:						· · · · · · · · · · · · · · · · · · ·			
Depth (A)	Sample 1D#	Geiger	Reading	(mR/hr)		Description				
5	WL-213	1	ground		i –	andfill Debris: trashy debris consisting of wood, plastic, cardoard, paper, wire, rubber, metal; soil consisting of				
		(0.02	0.04)		•	• • •		cy silt to dark gray,		
	WL-213	Back	ground	i	süty v	very fine-grained	and and crushed ro	ock; dry to moist.		
10	10'	(0.02	-0.04)							
15	WL-213		groupe -0.04)				-			
-	None	None								
	Taken	Taker	1							
20		†								
20	WL-213	Backs	ground		24.0-25.0° N moist.		dark gray, sitly, ve	ry fine-grained sand;		

Radiological samples collected at 5 and 25 feet below ground surface.

Non-radiological samples collected at 25 feet below ground surface; priority pollurant sampling.

Perched water not encountered during boring activities.

									 	
	S	oil		-000	ıg	KY.		VICIA Har	ren	
		L	og.					Har		
		Bor	iag No).		Project No-/Nat	DC		Page:	
		W	L-21	4		07.0803035.003	.002		l of l	
Sta	rt/Finish D	ale				Site Name and	ocation			
8/29	9/95					West Lake Landi	ill; Bridgeton, Mi	ssouri		
Dri	lling Contr	actor			-	Boring Location	:	Area 2		
Dril	ling Service	Comp	any			Ground Surface	Elevation:	468.5		
Dri	ller					Northing:		1070206.86		
Bru	œ Murphy					Easting:		515241.19		
	lling Equip						1	Geologist/Office		
	H-80T Drill	Rig, L	arge (, , , , , , , , , , , , , , , , , , , 		Tim Biggs / St. L			
1	Size/Type				Sample M		T.D. Borebole	Weil Installed?	•	
	OD Solid A	uger			Grab from	Augers	25	None Installed		
Ken	BEFKS:	7		-	 		•			
Ξ							Description			
Depth (ft)	Sample ID#	Gelger	Reading	mR/hr)		·				
	37 -	 	<u> </u>	<u> </u>	<u> </u>					
	WL-214	Back	ground	i	0.0-24.0' <u>L</u>	andfill Debris: tras	hy debris consisti	ng of shingles,		
5	5'	(0.02	-0.04)		carpe	ting, glass, wood,	plastic, brick, pape	er, wire, and metal	;	
		1			soil a	onsisting of dark g	ray clayey silt to f	ine-grained sand;		
	WL-214	Back	ground	ı	dry to	moist.				
10	10'	(0.02	-0.04)							
		j								
	WL-214		ground	i						
15	15'	(0.02	0.04)			-				
	WL-214	Backs	ground							
20	20'	(0.02	•							
					24.0-25.0° N	Vanve Alluvium:	ark gray, silty, fin	o-grained sand:		
	WL-214	Backs	round		moist.		3 ,, =			
25	2 <i>5</i> '	(0.02-	0.04)		Boring term	inated @ 25.0'				

Radiological samples collected at 5 and 25 feet below ground surface.

Non-radiological samples collected at 25 feet below ground surface; priority pollutant sampling.

Perched water not encountered during boring activities.

		S	oil L	Bo og		ıg		1	MCIA Hai	ren	
				ing N			Project No./Name Page:				
			WI	L-21	.5		07.0803035.003.002 l of l				
Star	rvFiai	sh D	te				Site Name and	Location			
	/29/95							fill: Bridgeton, Mi			
1	rilling Contractor						Boring Location		Area 2		
Dril	ling Se	rvice	Comp	епу			Ground Surface	Elevation:	470		
Dril	ler						Northing:		1070432.01		
Bru	∞ Mui	phy					Easting:		515259.72		
	liog E								Geologist/Office		
	_		Rig, L	arge [Diame	ter Auger		Tim Biggs / St. L	i		
	Size/T	•				Sample M		T.D. Borebole	Well Installed?		
	OD So arks:	A DII	uger			Grab from	Augers	10	None Installed		
Depth (ft)	Sample	# 01	Gelger	Reading	(mR/br)			Description			
	WL-	215	Back	-			andfill Debris: tras		-		
5	5'		(0.02	-0.04)	4	er, and wire; soil or	onsisting of dark g	ray to black silty	clay;	
	None		None			dry to @ 6'					
10 Taken Taken											
	None		None								
15	Take	n	Taker	<u> </u>		-					
	None		None								
20	Taker	1	Taker	1		Boring abar	ndoned @ 16.0"				

Radiological samples not collected during boring activities.

Non-radiological samples not collected during boring activities.

Perched water encountered at 6 feet below ground surface.

Groundwater not encountered during boring activities.

	S	oil Borii Log	ıg		1	yc <u>ıaren</u> Hart		
		Boring No.		Project No./Nar		Page:		
		WL-216A		07.0803035.003		1 of 3		
Sta	rt/Figish D			Site Name and				
[9/95 / 10/17			West Lake Landfill; Bridgeton, Missouri				
_	lling Coatr			Boring Location		Area 2		
1	-	ental Drilling		Ground Surface		477.4		
	lling Service	-		Northing:		1069836.29		
Dri	iler			Easting:		514936.08		
Ma	x Tinnin				McLaren/Hart	Geologist/Office		
Bru	œ Murphy				Tim Biggs / St. L	ouis		
	iling Equip							
		Rig, Hollow Stern	-					
_	Size/Type	Rig, Large Diam	Sample Me	thod	T.D. Borehole	Weil Installed?		
1		(mud rotary)	5' Continuo		146.2	D-12		
	4" ID; 8 1/4		Grab from A					
24*	OD Solid A	uger						
Depth (ft)	iample D#	Geiger Reading (mR/hr)			Description	•		
	ੁੱਲੋਂ = narks:	<u> </u>						
5	WL-216 5' WL-216 10'	Background	brown	silty clay to gray	consiting of graying very fine-grained debris encountered	sand, and		
15	WL-216 15' WL-216 20'	Background Background						
25	WL-216 25'	Background		g to coarso-graine	gray, silty, very til d sand, gravel, col	no-grained sand obles, and coal; moist		
	None	None	10 461.					
30	Taken	Taken				ļ		
	None	None						
35_	Taken	Taken						
40	None Taken	None	•					
70_	Lakell	Taken						
	None	None						
45	Taken	Taken						
	None	None	@ 48' v	wet				
50	Taken	Taken						
	None	None						
55	Taken	Taken						
60	None Taken	None Taken						

.

	Soil Boring								MCIA Hai	ren	
			L	og					'Hāī	E	
			Bori	ng No	٥.		Project No / Na	me		Page:	
			WI	L-21	6A	•	07.080303\$.003	.002		2 of 3	
Su	rt/Finisb	Da	te				Site Name and	Location			
8/2	9/95 / 10	/17/	95				West Lake Land	fill; Bridgeton, Mis	ssouri		
Dri	iling Co	atra	ctor				Boring Location	n:	Area 2	-	
Hau	t Enviror	ımer	ital D	rilling	;		Ground Surface	Elevation:	477.4		
Dri	lling Serv	rice (Comp	алу			Northing:		1069836.29		
Dri	ller						Easting:		514936.08		
Ма	ninniT x						1	McLaren/Hart	Geologist/Office		
Bru	ce Murpi	iy					<u> </u>	Tim Biggs / St. L	ouis		
	lling Equ	-									
	E-55 Dri					-					
			tig, L	arge [Diame	eter Auger		I	To a second		
	Size/Typ					Sample M	•	T.D. Borebole	Well Installed?	•	
	8" Drag I)	ł .	ous Sampler	146.2	D-12		
	4" ID; 8					Grab from .	Auger	}			
	OD Solid	1 Au	ger			<u> </u>		<u> </u>	1		
Ken	narks:					 					
Depth (ft)	Sample	1D#	Gelger	Reading	(mR/br)			Description			
	1 9,	_			<u> </u>						
	None		None								
65	Taken	- -	Taker	1							
		$\neg \uparrow$				65.0-125.0	Native Alluvium	: gray, silty, very (Sne-grained sand		
	None]	None			grading to coarse-grained sand, gravel, cobbles, and coal; moist					
70	Taken	ŀ	Taken	ı		to wet.					
	None	1	Vоле								
75	Taken		Taken	l							
	1										
	None	1	Vone								
30	Taken	_ ^	aken								
	İ.						_				
	None	- 1	Vone				-				
15	Taken	- 7	aken								
	None		.fa								
90	None	H	None								
	Taken	-+	aken		\dashv						
	None	,	√one								
95	Taken		aken								
<u>-</u>	Lancii	+	4001		\dashv						
	None		lone		Į						
00	Taken	- 1	aken		1						
_		+									
	None	N	lone		ŀ						
۸.	Taken		aken								
V)		+		_	\dashv						
<u>U3</u>	i				- 1						
05	None		lone		Į						
10	None Taken	- 1	lone aken								
10	None Taken	- 1	lone aken								
		1									

	S	oil l Lo		ng		A	Mclarer Hart			
		Borio	g No.		Project NoJN	ame	Page:			
		WL	-216	4	07.0803035.00	3.002	3 of 3			
Sta	rt/Finish D	ate			Site Name and Location					
8/29	9/95 / 10/17	7/95			West Lake Landfill: Bridgeton, Missouri					
l .	lling Coots				Boring Location		Area 2			
ł	t Environm		_		Ground Surfa	ce Elevation:	477.4			
	ling Service	Compa	шу		Northing:		1069836.29			
Dril					Easting:	Mal annuall	514936.08			
1	Tinnin Murphy					Tim Biggs / S	art Geologist/Office			
	ling Equip	ment			ـــــ	run Diggs / 3	L LOGIS			
ſ	E-55 Drill !		low Ster	n Augers						
l		_		neter Auger						
	Size/Type	<u></u>		Sample M	lethod	T.D. Boreho	e Weil Installed?			
4 1/1	8" Drag Bit	(mud ro	etary)	5' Continu	ous Sampler	146.2	D-12			
4 1/4	1" ID; 8 1/4	* Hole		Grab from	Auger					
24"	OD Solid A	uger								
Ren	arks:									
Depth (ft)	Sample ID#	Geiger	Reading (m. 1976)		Description					
120	None Taken	None Taken	-			-				
125	None Taken	None Taken								
				1			ery fine-grained sand			
	None	None		1	-	ned sand, gravel,	cobbles, and coal; moist			
130	Taken	Taken		to we	L					
135	None Taken	None Taken								
				1						
ļ	None	None								
140	Taken	Taken		_			•			
	None	None								
145	Taken	Taken								
	None	None								
150	Taken	Taken		Auger refus	ai@146.2' (bed	rock)				

Radiological samples collected at 5 and 25 feet below ground surface, downhole logging indicated elevated gamma readings from 2.5-5.0.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 48 feet below ground surface.

Seil Boring MCIA					
Log /\\\ Hār	<u>ren</u>				
	Page:				
WL-216B (WL-232) 07.0803035.003.002	loft				
Start/Finish Date Site Name and Location					
8/30/95 / 9/19/95 West Lake Landfill; Bridgeton, Missouri					
Drilling Contractor Boring Location: Area l					
Hart Environmental Drilling Ground Surface Elevation: 477.5					
Drilling Service Company Northing: 1069827.87 Driller Easting: 514934.35					
Max Tinnin McLaren/Hart Geologist/Office					
Bruce Murphy Tim Biggs / St. Louis					
Drilling Equipment CME-55 Drill Rig, Hollow Stem Augers					
LDH-80T Drill Rig, Large Diameter Auger					
Bit Size/Type Sample Method T.D. Borehole Well Installed? 4 1/4" [D: 8 1/4" Hole 5 Continuous Sampler 54.5" S-10					
4 1/4" [D; 8 1/4" Hole 5' Continuous Sampler 54.5' S-10 24" OD Solid Auger Grab from Auger					
Remarks:					
Sample 1D # Gelger Reading (mR/hr)					
None Background 0.0-22.0' Landfill Debris: soil consisting of grayish brown to olive					
5 Taken (0.01-0.03) brown silty clay to gray, very-fine grained sand, and crushed rock; no trashy debris encountered; dry to moist,					
None Background 10 Taken (0.01-0.03)					
None Background 15 Taken (0.01-0.03)	-				
None Background					
20 Taken (0.01-0.03)					
None None 22.0-54.5 Native Alluvium: gray, silty, very fine-grained sand Taken Taken grading to coarse-grained sand; moist to wet.					
None None					
30 Taken Taken					
None None					
35 Taken Taken					
None None					
40 Taken Taken @ 40' wet					
None None					
None None (
None None					
70 Taken Taken					
	}				
None None					

Radiological samples not collected during boring activities; downhole logging indicated elevated gamma readings from 3.0-5.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 40 feet below ground surface.

	S	oil Bo Log		ıg			٨	1CLE Ha	ren	
		Boring N			Project No./Na	ne .			Page:	
		WL-21			07.0803035.003				1 of 2	
Sta	rv/Finish D				Site Name and				11.01.2	
	0/95 / 10/13				West Lake Land		n Mies	വന്		
_	lliag Coats				Boring Locatio		14 141633	Area	· · ·	
	_	ental Drilling	,		Ground Surface			477.6	=	
	ling Service	•	•		Northing:			1069819.16	-	
Dri		, ,			Easting:			514925.06		
	. Tinnin					McLaren/I	Hart G	cologist/Offic		
	œ Murphy				j	Tim Biggs			•	
CM LDI	1-80T Dnill	ment Rig, Hollow : Rig, Large I		ter Auger						
4 1/4 4 1/4	4" ID; 8 1/4)	Sample Me 5' Communio Grab from .	ous Sampler	T.D. Boreb 93'		Weil Installed	!?	
	OD Solid A	rakes.		1		<u> </u>			 	
Depth (ft)	Sample 1D#	Gelger Reading	(mR/hr)			Descript	ion			
5	WL-216 5'	0.12		0.0-26.0 Lanafill Debris: trashy debris consisting of plastic, cloth, and glass; soil consisting of grayish brown to olive brown silty clay to gray, very fine-grained sand, and limestone rock; dry						
10	None Taken	Background (0.02-0.04)		to mo				•	•	
5	None Taken	Background (0.02-0.04)								
0	None Taken	Background (0.02-0.04)								
5_	None Taken	None Taken								
0_	None Taken	None Taken			Native Alluvium:			_	· · · · · · · · · · · · · · · · · · ·	
5	None Taken	None Taken	_	<i></i>	g	<i></i> 	- 			
0	None Taken	None Taken								
5	None Taken	None Taken								
0	None Taken	None Taken		@ 48'	wet					
5	None Taken	None Taken								
0	None Taken	None Taken								

	S	oil]	Ra		10				ACIA	ren	
		Lo	• • • • • • • • • • • • • • • • • • • •		45		77	/ \	MCIA Hai		
_	<u> </u>	Boris	ıg No			Project No./Name				Page:	
1		WL	21	6C		07.0803035.0	03.002			2 of 2	
Sta	rt/Finish D	ate				Site Name and Location					
8/30	0/95 / 10/13	1/95			•	West Lake Lar	ndfill; Bridgetor	ı, Mis	souri		
Dri	lling Conti	actor				Boring Locat	ion:		Area 2		
Har	t Environm	ental Dr	illing			Ground Sarfa	ce Elevation:		477.6		
Dril	ling Service	Compa	шу			Northing:			1069819.16		
Dri	ller					Easting:			514925.06		
Mau	c Tinnin					}	McLaren/I	Tart (Geologist/Office		
Bru	∞ Murphy						Tim Biggs /	St L	ouis		
Dri	ling Equip	ment									
1	E-55 Drill l	-			_						
LDH-80T Drill Rig, Large Diameter Auger											
,	Size/Type				Sample M		T.D. Boreb	ole	Weil Installed?		
1	8" Drag Bit		otary)			ous Sampier	93'		I-I I		
ŀ	4" ID; 8 1/4				Grab from	Auger			ļ		
	OD Solid A	uger]		<u></u>		<u> </u>		
Ren	arks:	· · · ·									
Depth (ft)	Sample 113 #	Gelger	Reading	(mR/br)			Descript	ioa			
	None	None									
65	Taken	Taken			Ì						
		1.2.0.			65.0-93.0	Native Alluviur	n: grav. siltvve	erv fin	e-grained sand		
	None	None			1	ng to coarso-grai		-	-		
70	Taken	Taken]		Ū				
75	None Taken	None Taken									
<u> </u>	1 akcii	1 axen									
	None	None									
80	Taken	Taken									
 -	- unoil	1.48441									
	None	None									
85	Taken	Taken				•					
_		1									
	None	None									
90	Taken	Taken									
	None	None									
95	Taken	Taken		į	Auger refus	al @ 93.0'					

Radiological samples not collected during boring activities; downhole logging indicated elevated gamma readings from 1.0-6.5'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 48 feet below ground surface.

		S	oil L	Bo og	riI	ıg	11	1	MCIA Hai	ren
				ng No			Project No./Name Page:			
			WI	21	7_		07.0803035.003	.002		l of l
Sta	rt/Finis	h Di	te				Site Name and I	ocation		
8/30)/95						West Lake Landi	ill; Bridgeton, Mis	souri	
Dni	lling Co	000	ctor				Boring Location	ı :	Area 2	
Dril	ling Scr	vice	Comp	алу			Ground Surface	Elevation:	474.7	
Dril	ller						Northing:		1069961.30	
Bru	∞ Murp	hy					Easting:	,	515082.21	
ł	ling Eq			arge l)iam	ter Auger		McLaren/Hart	=	
	Size/Ty	_				Sample M	ethod	T.D. Borehole	Weil Installed	
	OD Sol	•	uger			1 -	irab from Augers 17 None Installed			
Ren	arks:									
Depth (ft)	Sample	# 01	Gelger	Reading	(mR/hr)			Description		
	WL-21	17	Back	groune	1	0.0-17.0° <u>L</u>	andfill Debris: tras	thy debris consistir	ng of plastic, cloth	ι,
5	5'		1	-0.04)		_		g of olive brown t	• . ,	1
						and c	rushed rock; dry to	wet.	· · ·	-
	WL-21	17	Back	ground	i					
10	10'		(0.02	0.04)						
15	WL-21	17	None Taker			@ 12	wet			
20	None Taken		None Taker	1		Abandoned	boring @ 17.0°			

Radiological samples collected at 5 and 10 feet below ground surface. Non-radiological samples not collected during boring activities.

Perched water encountered at 12 feet below ground surface.

Groundwater not encountered during boring activities.

	C	oil	Rα					MACIA	ren		
	S		og og	de la la la la la la la la la la la la la	ıg			M ^C la Hai			
		Bori	ing N	0.		Project No./Nan	ne		Page:		
		WI	21	8		07.0803035.003	.002		l of l		
Sta	r/Finish D	ate				Site Name and Location					
8/30)/95					West Lake Landfill; Bridgeton, Missouri					
Dril	ling Contr	actor				Boring Location	1:	Area 2			
Drii	ling Service	Comp	апу			Ground Surface	Elevation:	489.7			
Dri	ler					Northing:		1069462.69			
Bru	∞ Murphy					Easting:		514839.09			
1	ling Equip						McLaren/Ha	ert Geologist/Office			
	I-80T Drill	Rig, L	arge (Diam			Tim Biggs/S				
	Size/Type				Sample M		T.D. Borehol		•		
_	OD Solid A	uger			Grab from	Augers	40*	None Installed			
-		T	-					···			
Depth (A)	Sample ID#	Gelger	Reading	(mR/hr)			Descriptio	a			
				-							
1	WL-218	Back	groun	d	0.0-37.0° <u>La</u>	andfill Debris: tras	try debris consi	isting of yard waste,			
5	5'	(0.02	-0.05)	wood, plastic, cloth, paper, wire, and metal; soil consisting						
	i	1.			of dark gray silty clay to fine-grained sand; dry to moist.						
	None	1 '	groun		l						
10	Taken	(0.02	-0.05)		ļ						
	None	Do ale									
15	Taken	Backs (0.02-	_								
	Luxuu	10.02	0.00				-				
	WL-218	Backs	ground	i							
20	20'	(0.02-	0.05)								
	WL-218	Backg	rounc	i							
25	25'	(0.02-	0.05)								
		}									
	WL-218	Backg									
30	30'	(0.02-	0.051								
35	WL-218 35'	Backg (0.02-		۱							
35	JJ	(0.02-	U.U3)								
	WL-218	Backg	round		37.0-40.0'	Vative Alluvium:	Dark grav. fine	-grained sand; moist.			
40	40'	(0.02-				s terminated @ 40		Granes caud money			

Radiological samples collected at 5 and 40 feet below ground surface.

Non-radiological samples collected at 25 feet below ground surface; priority pollutant sampling.

Perched water not encountered during boring activities.

	S	oil Lo	Bo og		ıg	11	1	MCIA Hai	ren		
		Bori	ng No	L		Project No./Nat	ne		Page:		
L		WI	<u> -21</u>	9		07.0803035.003.002 I of I					
Sta	rVFinish D	ate				Site Name and I	ocation.				
8/3	1/95			<u>.</u>		West Lake Landi	fill; Bridgeton, Mis	souri			
Dri	lling Contr	actor				Boring Location):	Area 2			
Dril	ling Service	Comp	any			Ground Sarface	Elevation:	4 96 .7			
Dri	ller				•	Northing: 1069142.47					
Bru	œ Murphy					Easting: 514545.63					
L	lling Equip I-80T Drill		arge [) iauma	ster Auger	McLaren/Hart Geologist/Office Tim Biggs / St. Louis					
-	Size/Type				Sample M	ethod	T.D. Borebole	Well Installed	?		
24"	OD Solid A	uger			Grab from	Auger	27	None installed			
Ren	arks:										
Depth (f)	Sample 1D#	Gelger	Reading	(mR/hr)			Description				
	WL-219	Backs	rounc	í	0.0-27.0 <u>[ن</u>	andfill Debris: tras	try debris consisti	ng of shingles,			
5	5'	(0.02-	0.04)		concr	ete, wood, plastic,	cloth, paper, and t	netal; soil consist	ing		
10	WL-219	Backs (0.02-			of oli	ve brown silt to da	rk gray silty clay;	dry to wet.			
15	WL-219 15'	Backg (0.02-		ı			-				
20	WL-219 20'	Backg (0.02-		l							
	None	None			@ 21'	wet					
25	Taken	Taken									
30	None Taken	None Taken			Boring aban	doned @ 27.0°					

Radiological samples collected at 5 and 10 feet below ground surface; grab perched water sample collected and analyzed.

Non-radiological samples collected at 25 feet below ground surface; grab perched water contingency sampling.

Perched water encountered at 21 feet below ground surface.

	S	oil Le	Bo og	rir	ıg	11	1	MCIA Hai	ren E			
		Bori	og No			Project No./Nan	ne		Pige:			
		WI	-22	0	_	07.0803035.003	.002		1 of 1			
Sta	rt/Fiaish D	ate				Site Name and Location						
8/3	1/95					West Lake Landfill; Bridgeton, Missouri						
Dri	lling Contr	actor				Boring Location: Area 2						
Dril	ling Service	Comp	апу			Ground Surface	Elevation:	503.9				
Dri	ller				_	Northing: 1069258.11						
	ce Murphy					Easting: 514733.38						
	lling Equip 1-80T Drill		arge D	iame	ter Auger	McLaren/Hart Geologist/Office Tim Biggs / St. Louis						
Bit :	Size/Type				Sample M	ethod	T.D. Borebole	Well Installed?	•			
$\overline{}$	OD Solid A	uger			Grab from	Augers	30'	None Installed				
Depth (A)	Sample 1D#	Gelger	Reading	(mR/hr)			Description					
٩	Ø = WL-220	Backs	<u> </u>		0.0-30.0° <u>L</u>	andfill Debris: tras	hy debris consistin	g of yard waste,				
5	5'	(0.02-	0.04)		l .		er, cardboard, inst					
	WL-220	Backs	ground	l	dry to	_	dark gray silty cla	y, and crushed ro	ek;			
10	10'	(0.02-	0.04)									
15	WL-220	Backs (0.02-		I			-					
	WL-220	Backs										
20	20'	(0.02-	0.04)									
25_	WL-220 25'	Backg (0.02-			@ 23'	wet						
30	None Taken	None Taken			Boring aban	ndoned @ 30.0°						

Radiological samples collected at 5 and 25 feet below ground surface; grab perched water sample collected and analyzed.

Non-radiological samples not collected during boring activities.

Perched water encountered at 23 feet below ground surface.

		Sc	oil Le	Bo og	1,141,14	ıg	M	1	٨	Aciarei Hart		
	-			ng No			Project No./Nat			Page:		
				22	! I		07.0803035.003			l of l		
-	r√Finish	D۵	te				Site Name and Location					
9/1/							West Lake Landfill; Bridgeton, Missouri					
ı	liag Coa						Boring Location: Area 2 Ground Surface Elevation: 462.3					
Dril	ling Servi	ce	Comp	апу			1	Elevation	:	462.3 1070567.35		
- ' "							Northing:			514459.37		
	e Murph ling Equ	_					Easting:	Mal area	/II a art C	Geologist/Office		
	• •	•		aree F)iame	ter Auger		Tim Bigg		-		
_	Size/Type			- 5		Sample M	ethod	T.D. Bore		Weil Installed?		
	OD Solid		ıger			Grab from		35'		None Installed		
	arks:											
Depth (ft)	Sample	# (31	Gelger	Reading	(mR/hr)		·	Descri	ption			
e	WL-221			groun			andfill Debris: tras					
5	5' WL-221		(0.02			4	, plastic, cloth, paper, and carpeting; soil consisting of dark and black silty clay to dark gray fine-grained sand; dry to					
10	10'	ì	Backs (0.02-	•		Inoist	•					
15	WL-221		Backs (0.02-	round	i			-	_			
	WL-221	- 1	Backg	*								
20	20'	+	(0.02-	0.04)	_							
25	WL-221 25'	- 1	Backg	,								
	WL-221 30'		Backg (0.02-	round	ı							
35	WL-221 35'	- 1	Backg		1	@ 34'			silty, fin	e-grained sand; wet.		

Radiological samples collected at 5 and 35 feet below ground surface.

Non-radiological samples collected at 35 feet below ground surface; priority pollutant sampling.

Perched water not encountered during boring activities.

Groundwater encountered at 34 feet below ground surface.

	S	oil L	Bo og		ıg		A	^	ACIA Hai	ren		
		Bor	ing No	0.		Project No./N.	me			Page:		
		W	L-22	22		07.0803035.00	3.002			lofl		
Sta	rvFinish l	Date				Site Name and Location						
9/1/	95					West Lake Landfill; Bridgeton, Missouri						
Dri	lling Cont	ractor				Boring Location: Area 2						
Dril	ling Service	æ Comp	эалу			Ground Surfac	e Elevation	:	457.8			
Dri						Northing:			1070799.38			
Bru	ce Murphy					Easting:			514618.74			
	ling Equi I-80T Dri		arge [Diame	cter Auger	. 	McLaren Tim Biggs		Geologist/Office ouis	-		
Bit :	Size/Type				Sample M	ethod	T.D. Bore	hole	Weil Installed	?		
	OD Solid	Auger			Grab from	Augers	35'		None installed			
Ren	rarks:				Τ							
Depth (ft)	Sample 1D#	Gelger	Reading	(mR/hr)	Description							
_	WL-222		groun		1 -	andfill Debris: tr	•		• .			
5	5'	1(0.02	2-0.04)			r, carpeting, wood, and metal; soil consisting of dark gray ack clay and silty clay to dark gray, silty, line-grained						
	WL-222	Back	groun	di		dry to moist.	ciay to dark	gray, si	пу, шк-дашки			
10	10'	t	-0.04)]	_•						
15	None Taken	1	ground (-0.04)				-					
	None	1	ground									
20_	Taken	(0.02	-0.04)									
	WL-222		ground									
25	25		-0.04)									
0	None		ground		0.00	4						
0	Taken	(0.02	-0.04)		@ 30 30 0-35 0' 1	Native Alluvium	dark oray	ilty fin	e-grained sand:	 		
	WL-222	Back	ground	,	wet.		· ·	• •				

Radiological samples collected at 5 and 30 feet below ground surface.

Non-radiological samples collected at 30 feet below ground surface; priority pollutant

and priority pollutant duplicate sampling.

Perched water not encountered during boring activities.

Groundwater encountered at 30 feet below ground surface.

	S	oil Borii Log	ıg	1	1	VCIA Hai	ren	
Г		Boring No.		Project No/Nan	ne		Page:	
L		WL-223		07.0803035.003.002 1 of 1				
Stat 9/5/	rvFinish D: 95	ate		Site Name and Location West Lake Landfill; Bridgeton, Missouri				
Dri	ling Contr	actor		Boring Location	1;	Area 2		
Dril	ling Service	Сотралу		Ground Serface	Elevatioa:	462.2		
Dril	ler		- · · - ·	Northing: 1070745.71				
Bru	∞ Murphy			Easting: 514734.14				
	ling Equip	ment Rig, Large Diam	eter Auger	McLaren/Hart Geologist/Office Tim Biggs / St. Louis				
Bit :	Size/Type		Sample M	ethod	T.D. Borebole	Well Installed?		
	OD Solid A	uger	Grab from	Augers	23'	None Installed		
Ken	arks:							
Depth (ft)	Sample ID#	Geiger Reading (mWhr)			Description			
5	WL-223 5'	Background (0.01-0.03)	plasti	andfill Debris: tras ic, cloth, rubber, an	d paper, soil cons	isting of brownish		
10	WL-223	Background (0.01-0.03)		w silt to dark gray o moist.	silty clay and silty	fine-grained sand	L	
15_	WL-223	Background (0.01-0.03)						
20	WL-223 20'	Background (0.01-0.03)						
	WL-223	Background	22.0-23.0'	Native Alluvium:	dark gray, fine-gr	ained sand; moist		
25	23'	(0.01-0.03)	Borin	g terminated @ 23	.0'			

Radiological samples collected at 5 and 22 feet below ground surface; downhole logging indicated elevated gamma readings from 4.0-5.5°.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

	S	oil	Bo	riı	ıg			MCIC Hai	ren				
		L	og.					Hai					
Г	<u> </u>	Bori	ng No).).		Project Na/Na	me		Page:				
L		WI	<u>L-22</u>	24		07.0803035.00	003.002 Lof3						
Sta	rvFinish D	ate				Site Name and	Location						
9/1	4/95 / 10/19	9/95				West Lake Lane	ifill; Bridgeton, Mi	issouri					
j	illing Conti					Boring Location		Area 2					
ļ	nt Environm		•	:		Ground Sarta	e Elevation:	468.4					
_	lling Service	Comp	апу			Northing:		1070485.74 515601.73					
- ' '	x Tinnin				•	Easting:	Mcl aren/Hart	Geologist/Office					
	ce Murphy						Tim Biggs / St. I	_					
_	iling Equip	ent.				<u> </u>							
	E-55 Drill I	-			•								
_	H-80T Drill	Rig, L	arge [)iam				Jan. 10 a 10 a					
	Size/Type 8" Drag Bit	(mud e	nmm)		Sample M	lethod ous Sampler	T.D. Borehole	Well Installed	•				
	4" ID; 8 1/4				Grab from			"					
	OD Solid A				L								
	narks:												
Depth (ft)	Sample 1D#	Gelger	Reading	(mR/br)	}		Description						
35.	Samp ED#	<u> </u>	_≟_	<u> </u>									
_	WL-224	Back	•		ł		shy debris consisti		d,				
5	5'	(0.02-	-0.04)				ass, and metal; soil id dark gray clayey	•					
	WL-224	Backs	ground	i	1	ed sand; dry to m		sin to sinty take-					
10	10'	(0.02-	0.04)		_		-						
	WL-224	Backs	-										
15	15	(0.02-	0.04)										
	WL-224	Backe	rround	ı									
20	20'	(0.02-											
	WL-224	Backg											
2.5	25'	(0.02-	U.U4)	_									
	WL-224	Backg	round										
30	30°	(0.02-							!				
					_								
35	WL-224	Backg			@ 33'		dark gray clayey s	ilt aradina to 6					
		0.02-	J.U+)	-		rse grained sand,		PrenmR to mic					
	None	Backg	round										
10	Taken	(0.02-											
		_											
	None	Backg											
15	Taken	(0.02-	0.04)										
	None	Backg	round	1					ľ				
50	Taken	(0.02-]									
									ł				
	None	None		1									
55	Taken	Taken							1				
		. ,											
	None	None		1									
0	Taken	Taken		1									

-

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		S	oil)	Bo	rii	ıg			MCIA Har	ren			
			Lo	g									
			Bori	-			Project No./Na	me	P	age:			
			WI	<u>22-ر</u>	24		07.0803035.00	3.002		of 3			
Sta	rt/Finis	b D	ate				Site Name and Location						
	4/95 / I						West Lake Landfill; Bridgeton, Missouri						
!	lling C						Boring Location		Area 2				
	t Envin				3		Ground Surfac	e Elevation:	468.4				
	lling Se	rvice	Comp	апу			Northing:		1070485.74				
	iler						Easting:	Mail - Off a	515601.73				
	k Tinnii	-							Geologist/Office				
_	œ Mur						<u> </u>	Tim Biggs / St. L	OUIS				
	lling E			llaw '	S	Augen							
	E-55 D		-			Augers eter Auger							
	Size/Ty		Nig, La	n še i	Jialik	Sample M	ethod	T.D. Borebole	Well Installed?				
	8" Drag	•	(mud n	VIRIO	١	1 7	ous Sampler	135.5	D-13				
	о Diag 4" ID: 8			Jan y	,	Grab from		1.55.5	15-15				
	OD Sol					J.20 2011	· 5		1				
	narks:	/ 1				J.,		J	.L				
Depth (ft)	Sample	# (1)	Gelger	Reading	(mR/hr)			Description					
=	\ <u>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</u>	=		<u> </u>	<u> </u>	 				· ·			
	None		None										
55	Taker	1	Taken	1		1							
						65.0-125.0	Native alluvium	: dark gray clayey	silt grading to fine				
	None		None			to cos	rse grained sand,	and coal; wet.					
70	Taken		Taken										
						ļ							
	None		None			{							
75	Taken		Taken										
	None		None										
10	Taken		Taken										
	<u> </u>		ļ 										
	None		None										
15	Taken		Taken										
	None		None										
ю	Taken		Taken			!							
<u> </u>	Lakell		LUNCIL										
	None		None										
5	Taken		Taken										
-													
	None		None		1								
00	Taken	_	Taken		_								
	None		None		Į								
05	Taken		Taken]								
	None		None		ļ								
10	Taken		Taken										
Ī		I	_										
	Moss		None		l								
	None	- 1			ı								

	S	oil l			ıg	11		MCIA Hai	ren t
		Bori	ng N	<u> </u>		Project No./Nai	ne	-	Page:
		WI	22	24		07.0803035.003.002 3 of			
Stai	rvFinish D	alc				Site Name and	Location		
9/14	1/95 / 10/19	9/95				West Lake Land	fill; Bridgeton, Mis	souri	
Dril	lling Contr	actor				Boring Location	:	Area 2	
Han	t Environm	ental Dr	illing	;		Ground Surface	: Elevation:	468.4	
Dril	ling Service	Comp	any			Northing:		1070485.74	
Dril	ler					Easting:		515601.73	
Мах	Tinnin						McLaren/Hart	Geologist/Office	
Bru	∞ Murphy					L	Tim Biggs / St. L	ouis	
Dril	ling Equip	ment							
СМ	E-55 Drill I	Rig, Hol	low S	Stem .	Augers				
LDF	1-80T Drill	Rig La	irge [Diame	ter Auger		,		
Bit S	Size/Type				Sample M	ethod	T.D. Borehole	Well Installed?	•
4 1/8	3" Drag Bit	(mud n	otary)	5 Continue	ous Sampler			
4 1/4	** ID; 8 1/4	* Hole			Grab from Auger 135.5 D-13				
24"	OD Solid A	uger			<u> </u>		<u> </u>	<u> </u>	
Rem	arks:						·		
Depth (ft)	Sample ID#	Gelger	Reading	(mR/hr)			Description		
120	None Taken	None Taken	ı						
126	None	None					-		
123	Taken	Taken			•		n: dark gray claye	y silt grading to fi	ine
120	None	None			10 000	urse grained sand, a	and coal; wer		
130	Taken	Taken							
	None	None							
135	Taken	Taken							
	None	None							
140	Taken	Taken		1	Auger refus	al @ 135.5" (bedro	ock)		

Radiological samples collected at 5 and 35 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 33 feet below ground surface.

		So	oil L	Bo	rir	ıg		1	٨	I CH	la	ren	
				ng No			Project No./Nat	ne				Page:	
		_		22	5		07.0803035.003.002						
	rv Finish	Da	ite				Site Name and Location						
9/14 Dei	ling Co		ctor				West Lake Landfill; Bridgeton, Missouri Boring Location: Area 2						
	ling Serv			anv			Ground Surface				468.2		
Dril							Northing:			1070.	576.93		
Brue	ce Murph	ıy					Easting:			515	632.66		
	ling Equ	-		arge D)iam	ster Auger		McLaren/Ha Tim Biggs / S		_	Office		
	Size/Typ					Sample M	ethod	T.D. Borehol	T	Well In:	stailed?	<u> </u>	
	OD Solic		uger			Grab from		3 <i>T</i>		None In			
Ren	arks:												
Depth (n)	Sample	# QI	Geiger	Reading	(mR/hr)			Descriptio	<u> </u>				
	WL-22	5	Back	ground	i	0.0-37.0° <u>L</u> :	andfill Debris: tras	hy debris consi	isting	of rubb	er,		
5	5'		(0.02	-0.04)		shingles, wood, plastic, cloth, paper, glass, concrete, and metal;							
	WL-22:	٢	Back	ground	i	soil consisting of dark gray, slightly sandy, clayey silt; dry to wet.							
10	10'		1	-0.04)									
15	WL-22:		Backs (0.02-	ground (0.04)				-					
20	WL-225	5	,	round									
25	20' (0.02-0.04)												
30							fl						
35	WL-225 Background (0.02-0.04)						5' wet						
10	None Taken	- 1	None Taken			Boring term	inated @ 37.0'						

Radiological samples collected at 5 and 35 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 31.5 feet below ground surface.

		S	oil L	Bo og	rir	ıg			٨	101a Har	r <u>en</u>																													
			Bori	ng No			Project No./Nan	ne			Page:																													
L			WI	<u>22</u>	6		07.0803035.003	.002			lofi																													
Sta	rvFioi:	sh D	ate				Site Name and I	ocation																																
9/1.	5/95						West Lake Landf	ill; Bridgeton, N	Misso	ouri																														
	lling C						Boring Location Ground Surface			Area 2																														
-	ling Se	rvice	Сопр	алу			467.5																																	
Dri		_1					Northing: 1070536.0																																	
_	œ Mur lling E	<u> </u>				Easting: 514992 McLaren/Hart Geologist/O			514992.10																															
				arge D	iame	ter Auger		Tim Biggs / St		=																														
_	Size/Ty	_	1-64 -			Sample M	ethod	T.D. Borebok	_	Weil Installed?																														
24"	OD 80	lid A	uger				Grab from Augers 43' None Installed																																	
Ren	narks:		,																																					
Depth (ft)	Sample	1D#	Gelger	Reading	(mR/hr)			Description	9																															
5	WL-2		Back	ground -0.04)		wire,	andfill Debris: tras	paper; soil cons	istin	g of dark gray,																														
10	WL-2	26	1 '	ground -0.041	l į	sugnu	nd; dry to moist.																																	
15	WL-2	26	0.11					0.11		0.11		0.11		0.11		0.11		0.11		0.11		0.11		0.11		0.11		0.11		0.11		0.11		0.11			-			
	WL-2	26	DI	· a																																				
20_	20'	<u> </u>	(0.02-	2round -0.04)																																				
25	WL-2	26	Backs (0.02-	,																																				
30	WL-2: 30'	26	Backg (0.02-	round 0.04)																																				
	WL-2:	26	Backo	ground																																				
35	35'_	_	(0.02-		_																																			
	WL-22	26	Backg	round																																				
0	40'		(0.02-	0.04)																																				
					Ţ	@ 42'																																		
	WL-22	26	None		ŀ		lative Alluvium:		grain	ed sand; wet.																														
5	43'		Taken			Boring	terminated @ 43.	0'																																

Radiological samples collected at 10 and 20 feet below ground surface; downhole logging indicated elevated gamma readings from 2.0-3.5' and 6.0-16.0'.

Non-radiological samples collected at 43 feet below ground surface; priority pollutant sampling. Perched water not encountered during boring activities.

Groundwater encountered at 42 feet below ground surface.

	S	oil Le	Bo og		ıg			Mc <u>laren</u> Hart		
l			ng No			Project No./Nat		Page:		
_			<u>22</u>	. /		07.0803035.003		1 of 1		
]	rvFioisb D	atc				Site Name and I		•		
9/15							ill; Bridgeton, Mi			
1	ling Conti ling Servic		anu			Boring Location: Area 2 Ground Surface Elevation: 462				
Dril		Comp	4117			Northing: 1070685.99				
	æ Murphy					Easting: 515258.39				
	ling Equip	ment				1	McLaren/Hart	Geologist/Office		
	1-80T Drill		arge [)iam	ater Auger		Tim Biggs/St. I			
Bit S	Sizze/Type				Sample M	ethod	T.D. Borebole	Weil Installed?		
	OD Solid A	luger			Grab from	Augers	40'	None installed		
Depth (A)	Sumple 11) #	Gelger	Reading	(mR/br)			Description			
	WL-227	Backs	_		1			ing of wood, rubber,		
5	5'	(0.02-	0.04)		4 .	_	-	paper, soil consisting		
	WL-227	Backs	mound	1	dry to	=	sitty clay to dark	gray fine-grained sand;		
10	10.	(0.02-								
		1								
	WL-227	Backg	round	i						
15	15'	(0.02-	0.04)				_			
	WL-227	Backg	round	i			-			
20	20'	(0.02-	0.04)							
25	WL-227 25'	Backg (0.02-								
30	WL-227 30'	Backg (0.02-4			@ 28	wet				
	WL-227	Backg	round							
	WL-227 40'	Backgr (0.02-0	round		-	e Alluvium: dark j g terminated @ 40.	-	sand; wet.		

Radiological samples collected at 5 and 40 feet below ground surface.

Non-radiological samples collected at 40 feet below ground surface; priority pollutant sampling.

Perched water not encountered during boring activities.

Groundwater encountered at 28 feet below ground surface.

	S	oil Boı Log	,	ıg			M ^C La Hai	ren	
		Boring No.			Project No./Nat	ne		Page:	
}		WL-22	8	•	07.0803035.003	.002		I of I	
Sta	rt/Finish D	ale			Site Name and I	ocation			
9/1:	5/95				West Lake Landi	fill; Bridgeton, M	issouri		
Dri	lling Coatt	actor			Boring Location	ı:	Area 2		
Har	t Environm	ental Drilling			Ground Surface Elevation: 441.6				
Dri	iler				Northing: 1071044.35				
Max	CTinnin				Easting:	,	514724.16		
1	lling Equip					1	Geologist/Office		
		Rig, Hollow S	tem .			Tim Biggs / St. I		·	
ļ.	Size/Type 4"ID; 8 1/4	• Uala		Sample M	ethod xus Sampler	T.D. Borehole 29.3'	Well Installed: S-8	{	
	parks:	HOIC		13 Continue	Aus Samples	129.3	13-0		
Depth (A)	Sample ID#	Gelger	(mR/hr)			Description			
	WL-228	Background		0.0-29.3' <u>N</u>	lative Alluvium:	olive brown sandy	silt and silty clay		
5	5'	(0.01-0.04)		gradir	ng to dark gray me	dium to coarse-gr	rained sand; dry to	wct.	
	WL-228	Background							
10	10'	(0.01-0.04)	_	@ 10'	wet				
15	WL-228 15'	Background (0.01-0.04)				. - -			
20_	WL-228 20'	Background (0.01-0.04)							
25	WL-228 25'	Background (0.01-0.04)							
30	None Taken	Background (0.01-0.04)		Boring term	inated @ 29.3'				

Radiological samples collected at 5 and 15 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 10 feet below ground surface.

										
	S	oil Borin Log	ıg	11	1 /	MCIA Har	ren			
	<u> </u>	Boring No.		Project No./Nat	pe		Page:			
1		WL-229		07.0803035.003.002 1 of 2						
Sta	rt/Finish D			Site Name and Location						
1	8/95			West Lake Landfill; Bridgeton, Missouri						
Dri	lling Contr	actor		Boring Location		Area 2				
Har	t Environme	ental Drilling		Ground Surface	Elevation:	448.5				
Dri	iler			Northing:		1069329.26				
Ma	c Tinnin			Easting:		514268.59				
í	lliag Equip				(Geologist/Office				
		tig, Hollow Stern			Tim Biggs / St. L					
i	Size/Type	* 11 -1-	Sample M		T.D. Borchole 55.6'	Weil Installed?				
	4" ID; 8 I/4	Hole	15 Continue	ous Sampler	[33.0	11-9	_			
	1	T	T							
Ξ	J	<u>*</u> -			Description					
Depth (A)	Sample ID#	Geiger Reading (mR/hr)								
ڪَا	S	<u> ĕ </u>	00500	icu o i		7				
ŀ	WL-229	Books	1			m silt, and asphalt				
5	5	Background (0.01-0.04)	no tra	shy debris encoun	icrea; ary.					
<u> </u>	13	(0.01-0.04)	! !			··				
	None	Background	5.0-56.0° N	ative Alluvium:	lark grav. siltv. fir	e-grained sand				
10	Taken	(0.01-0.04)		ng to coarse-graine						
Г	1			3	9					
	None	Background								
15	Taken	(0.01-0.04)			- -					
	i		@ 16'	wet						
	WL-229	Background								
20	20'	(0.01-0.04)					}			
	N# 222	 								
25	WL-229 25'	Background (0.01-0.04)								
	 -	(0.01-0.04)								
	WL-229	Background								
30	30.	(0.01-0.04)								
	None	None								
35	Taken	Taken								
	None	None					}			
40	Taken	Taken					İ			
	None	None								
45	Taken	Taken								
							}			
	None	None	•				1			
50	Taken	Taken								

	S	oil l Lo			ıg			MCIA Hai	r <u>en</u>	
		Boria	ng N	0.		Project No./Name Page:				
L		WL	<u>22</u>	29		07.0803035.003	.002		2 of 2	
Star	√Finish D	ate .				Site Name and	Location			
9/18	/95					West Lake Land	fill; Bridgeton, Mis	ssouri		
Dril	ling Contr	actor				Boring Locatio	e:	Area 2		
Hart	Environme	ntal Dr	illing	3		Ground Sarface Elevation: 448.5				
Dril	ler					Northing:	Northing: 1069329.26			
Max	Tinnin					Easting: 514268.59				
Dril	llag Equip	ment				McLaren/Hart Geologist/Office				
СМ	E-SS Drill F	lig, Hol	low	Stem.	Augers		Tim Biggs / St. L	ouis		
Bit S	ize/Type				Sample M	ethod	T.D. Borehole	Well Installed		
4 1/4	" ID; 8 1/4	* Hole			5' Continue	ous Sampler	55.6	I-9		
Rem	arks:									
Depth (ft)	Sample ID#	Geiger	Reading	(mR/br)			Description			
55	None Taken	None Taken				0-55.6' Native Alluvium: dark gray, silty, fine-grained sand grading to coarse-grained sand with gravel; moist to wet.				
60	None Taken	None Taken				ninated @ 55.6'		ig indise to trete		

Radiological samples collected at 5 and 20 feet below ground surface.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 16 feet below ground surface.

	S	oil L	Bo og		ıg	11		Λ	Ac <u>laren</u> Hart		
			ing No L-23			Project No./Nan			Page:		
Sa.	rt/Finish D		23	<u> </u>		07.0803035.003			I of I		
9/18		aic.				Site Name and Location West Lake Landfill; Bridgeton, Missouri					
	ling Coutr	actor				Boring Location: Area 2					
1	ling Service		any			Ground Surface Elevation: 463.3			463.3		
Dril	ller					Northing:			1070716.09		
Bru	∞ Murphy					Easting: 515139.66			515139.66		
ł	ling Equip 1-80T Drill		arge D	iame	ter Auger		McLaren/Ha Tim Biggs / S		Geologist/Office Duis		
	Size/Type				Sample M	ethod	T.D. Boreboi	e	Weil Installed?		
	OD Solid A	uger			Grab from	Augers	35'		None Instailed		
Ken	arks:	Τ-	·		T						
Depth (ft)	Sample ID#	Geiger	Reading	(mR/hr)			Description	0	·		
5	WL-230 5'	1	ground -0.04)		wire,	glass, carpeting, m	netal, and paper	; soi	g of plastic, cloth, il consisting of olive		
	WL-230	Back	ground			ı siit, dark gray ola xd sand: dry to wet		urk (gray, silty, fine-		
10	10'	1	-0.04)		5.4	2 344 C 47 10 11C1	•				
15	WL-230 15'		ground (0.04)				-				
}	WL-230	Backs	ground		_	soil discolored; per r than 10 X backg		OVI	M reading		
20	20'	(0.02-	0.04)								
25	WL-230 25'	Backs (0.02-	•								
30_	WL-230 30'	Backs (0.02-	round 0.04)		@ 29'	wet			I		
35	WL-230 35'	Backs (0.02-	round		_	Vative Alluvium:		, fin	re-grained sand; wet.		

Radiological samples collected at 5 and 35 feet below ground surface.

Non-radiological samples collected at 16 and 35 feet below ground surface; contingency sampling.

Perched water not encountered during borning activities.

Groundwater encountered at 29 feet below ground surface.

		S	oil L	Bo og	·.·.·.	ıg			~	<u>ICIA</u> Har	ren	
			Bori	ing No).		Project No/Nai	ec .			Page:	
			WI	L-23	1		07.0803035.003	.002			l of l	
Sta	rvFiai:	sh D	21c				Site Name and	ocation				
9/18	3/95						West Lake Land	ill: Bridgeton,	Misso	uri		
Dri	lling C	oatr	actor				Boring Location: Area 2					
-	ling Se	rvice	Comp	any			Ground Surface Elevation: 464.8					
Dri							Northing: 1070850.73					
	œ Mur	· -					Easting: 515007.27					
•	ling E	-		2000 T	\:	eter Auger		McLaren/Ha Tim Biggs / S		ologist/Office		
	Size/Ty		rug, L	an Re I	/ LALITH	Sample M	ethod	T.D. Borehol		Veil Installed?		
	OD So		uger			Grab from		40'	· [one installed		
_	arks:											
Depth (ft)	Sample	# (11	Gelger	Reading	(mR/hr)			Descriptio	•	·		
	WL-2	:31	Back	Stone	d	0.0-40.0 <u>L</u>	andfill Debris: tras	try debris consi	sting (of plastic, cloth,		
5	5'		(0.02	-0.04)			glass, and paper, soil consisting of brownish gray silt, dark gray					
	WL-2	21	Back	ground)	and black clayey silt to dark gray, silty, fine-grained sand, and crushed rock; dry to wet.					
10	10'	١ د.	1	-0.04)		dusi	en rock, my to we	•				
	WL-2	31										
15	15'		(0.02	0.04)				-				
20	WL-2 20'	31	(0.02-0.04)									
25	WL-231 Background 25' (0.02-0.04)											
	WL-231 Background											
30	30,		(0.02-	0.04)								
35	WL-231 Background @ 3					@31.	5' wet					
 _												

Taken

Radiological samples collected at 5 and 10 feet below ground surface; downhole logging indicated elevated gamma readings from 4.5-7.5°.

Non-radiological samples collected at 31 feet below ground surface; contingency grab perched water sampling.

Boring abandoned @ 40.0

Perched water not encountered during boring activities.

Groundwater encountered at 31.5 feet below ground surface.

		S	\ i1 \		-				ACIA	ren			
		3	oil . Le	ou Og	143434	Š			MCIA Hai				
	<u> </u>			ng No		<u> </u>	Project No./Na	ne	. — — —	Page:			
				۔ 23-ي			07.0803035.003.002 1 of 1						
Sta	rt/Fiais	b D	a (e				Site Name and Location						
9/19	9/95						West Lake Landfill; Bridgeton, Missouri						
Dri	lling Co	ontr	actor				Boring Location);	Area 2				
Dril	ling Sca	vice	Comp	алу			Ground Surface	Elevation:	489.2				
Dri	ller						Northing:		1069542.40				
_	œ Мил						Easting:		514609.19				
1	ling Eq			r	. :				Geologist/Office				
_	Size/Ty		Kig, L	arge L) Lame	Sample M	athad	Tim Biggs / St.	Well Installed				
ı	OD Sol	•	uger			Grab from		42.5'	None installed	•			
	arks:		-3			10.00							
	-		1			ĺ							
Depth (ft)	늴		5	ğ	/hr.)			Description					
<u>1</u>	Sample	# G	Gelger	Reading	(mR/hr)								
_	1.31	_	<u> </u>		<u> </u>								
	WL-2	33	Back	ground	i	ر.0.0 -4 2.5 ا	andfill Debris: tra	itry debris consisti	ing of wood, plasti	с,			
5	5'		(0.02	0.04)		•			paper, soil consist	-			
		• •					of gray clay, dark gray to black silt, and dark gray, silty, fine- grained sand; dry to wet.						
10	WL-2:	دد	Backs (0.02-			grained sand; dry to well							
10	10		(0.02-	0.04)									
	WL-2:	33	Backs	mound	1								
15	15'		(0.02-					_					
	WL-2	33	Backg	round	!								
20	20'		(0.02-	0.04)		@ 20'	OVM readings gr	eater than 10 X b	ackground				
	}		[
26	WL-23	33	Backg		l								
25	25'		(0.02-	0.04)	_								
	WL-23	เร	Backg	mund									
30	30'	,,	(0.02-		·								
_	-		,										
	WL-23	33	Backg	round									
35	35'		(0.02-										
	WL-23	3	Backg		.]	@37	wet						
40	40'		(0.02-	0.04)	\dashv								
					- 1								
45	WL-23 45'	13	Backg (0.02⊀			Roring term	inated @ 42.5'						
	·		10.024	·. • · ·	_ 1	TOWNE COM	درست دني ۱۷۰۰			_			

Radiological samples collected at 27 and 30 feet below ground surface; downhole logging indicated elevated gamma readings from 18,0-24.5'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 37 feet below ground surface.

		Soil	Bo	rir	ıg		/ A	ACIAS	en		
			og	0.000	7			NCIA!	آ سٽٽ 		
			ing No			Project No/Nan	De .	Page	:		
L		W]	L-23	4		07.0803035.003	.002	1 of	1		
Sta	rt/Fioisb	Date				Site Name and I					
H	9/95 / 9/20						ill; Bridgeton, Mis				
i	lling Com					Boring Location: Area 2 Ground Surface Elevation: 480					
_	lling Servi	œ Comp	any			Ground Surface Northing:	EKVARIOR:	1069757.62			
	ce Murphy	,				Easting: 514428.12					
	lling Equi					McLaren/Hart Geologist/Office					
	H-80T Dri		arge [Diam	ter Auger		Tim Biggs/St.L	-			
ı	Size/Type				Sample M		T.D. Borebole	Well Installed?			
_	OD Solid	Auger			Grab from	Augers	42'	None Installed			
Kei	Barks:	1			Τ						
Ξ	<u>.</u>	1.	*	Ē	1		Description				
Depth (ft)	Sample ID #	Gelger	Reading	(mR/hr)							
	 	9	<u> </u>	_5_					_		
	WL-234	0.08			0.0-39.0° La	andfill Debris: tras	hy debris consistin	g of wood, plastic,			
5	5'				i		g of brown silt, dar	=			
					*		ay, silty, fine-grain	ed sand and crushed			
	WL-234	3.0			rock;	dry to moist.					
10	10'										
	WL-234	0.15									
15	15'	0.13					-				
	1										
	WL-234	Back	round	1							
20	20'	(0.02-	0.04)								
	Ì										
25	WL-234 25'	Backs	4	'							
ر.	123	(0.02-	0.04)	\dashv							
	WL-234	Backg	round								
30	30'	(0.02-									
	WL-234	Backg									
35	35'	(0.02-	0.04)	\dashv			dark gray plastic c	tay grading to			
	WL-234	Backg		Ì	clayey	silt; moist.					
10	WL-234 40'	(0.02-		j							
<u> </u>		1	,	\dashv							
	WL-234	Backg	round								
5	42'	(0.02-		- 1	Boring termi	nated @ 42.0'					

Radiological samples collected at 10 and 20 feet below ground surface; duplicate samples collected and analyzed; downhole logging indicated elevated gamma readings from 0.0-15.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

	S	oil Borii Log	ıg		1	MCIA Hai	ren			
	<u> </u>	Boring No.		Project No/Nas	ae		Page:			
		WL-235		07.0803035.003	.002		1 of 1			
Su	rt/Finish D	ate		Site Name and I	Site Name and Location					
9/2	0/95			West Lake Landfill; Bridgeton, Missouri						
Dri	illiag Coatr	actor		Boring Location: Area 2						
$\overline{}$	lling Service	Сопралу	·	Ground Surface	Elevation:	481.1				
Dri	iler			Northing: 1069615.23						
-	ce Murphy			Easting:		514418.87				
	lling Equip		A		McLaren/Hart	_				
	Size/Type	Rig, Large Diam	Sample M	lashad	Tim Biggs / St. L T.D. Borehole	Weil Installed	,			
1	OD Solid A	uger	Grab from		30°	None installed				
_	narks:		10.00	5		1				
Depth (ft)	Sample 1D#	Geiger Reading (miR/hr)			Description					
ڇ	<u> § ≘</u>	<u> </u>			 _	····				
	WL-235	Background	0.0-30.0 1	andfill Debris: tras	hy debris consistin	g of wood, metal	•			
5	5	(0.02-0.04)	1		ation, plastic, and g	•	-			
	WL-235	Background	of dan dry to	•	clayey and silty,	fine-grained sand				
10	10"	(0.02-0.04)								
15	WL-235	Background (0.02-0.04)								
	None	Background			-					
20	Taken	(0.02-0.04)	1							
	None	Background	II.							
25	Taken	(0.02-0.04)	@ 25'	wet						
	WL-235	Background								
30	30°	(0.02-0.04)	Boring aban	idoned @ 30.0"						

Radiological samples collected at 5 and 30 feet below ground surface; downhole logging indicated elevated gamma readings from 21.0-24.0°.

Non-radiological samples not collected during boring activities.

Perched water encountered at 25 feet below ground surface.

Groundwater not encountered during boring activities.

	(So	oil Le	Bo og	· . · . · . · .	ıg	11	1	^	MCIA Hai	r <u>en</u>	
				ng No			Project No./Nat	ne			Page:	
		_		L-23	0		07.0803035.003				1 of I	
9/21	r√Fiaisb .o.<	U=	ile				Site Name and Location West Lake Landfill; Bridgeton, Missouri					
-	ling Con	-	CIOE			<u> </u>	Boring Location		WIL WIS	Area 2		
ı	ling Servi			anv			Ground Surface Elevation: 484.3					
Drii				- · -			Northing: 1069399.29					
Bruc	e Murph	y					Easting:			514384.13		
Dril	ling Equ	ipa	nent					McLare	/Hart (Geologist/Office		
LDI	1-80T Dr	ill l	Rig, L	arge D)iam	ter Auger		Tim Bigg	s/St.L	ouis		
	Sizze/Type					Sample M	ethod	T.D. Bor	ebole	Well Installed?	•	
_	OD Solid	A	ıger			Grab from	Augers	37		None installed		
Depth (ft)	Depth (ft) Sample ITD # Gelger Reading (mR/hr)							Descri	ption			
	WL-236	5	Back	zrounc	í	0.0-37.0 L	andfill Debris: tra	shv debris	consisti	ng of wood, metal	L	
5	5'		(0.01	-		1	, wire, carpeting, r					
	None		Backs	ground	ı	soil consisting of dark gray clay to silty clay; dry to moist.						
10	Taken	_	(0.01-	0.04)								
15	None Taken		Backs (0.01-	•	l			•	-			
20	None Taken	- 1	Backg (0.01-									
	None Taken		Backg	round								
ر ر	1 SYCII	╣	(0.01-	v. 04)	\dashv							
- 1	WL-236	- 1	Backg		İ							
30	30'	-4	(0.01-	0.04)								
	WL-236 35'		Backg			@ 35'	wet					
	None Taken		Backg			Auger refusa	n @ 37 0°					

Radiological samples collected at 5 and 35 feet below ground surface. Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 35 feet below ground surface.

	S	oil Bori	ng	XXX		MCIAT Hart	<u>en</u>		
		Log				Hart			
Г		Boring No.	·	Project No/Nai	DC	Page	::		
L		WL-237		07.0803035.003	.002	1 of	1		
	rt/Finish D	ate		Site Name and Location					
-	2/95				ill; Bridgeton, Mi				
ı	lling Conti			Boring Location		Area 2			
Dri	lling Service	e Company		Ground Surface	Elevation:	473.9			
	ce Murphy			Northing:		1070069.42			
_	lling Equip	ment		Easting: 515161.88 McLaren/Hart Geologist/Office					
ı	•	l Rig, Large Diam	eter Auger		Tim Biggs / St. L	-			
Bit	Size/Type		Sample M	ethod	T.D. Borehole	Well Installed?			
	OD Solid A	\uger	Grab from	Augers	40°	None installed			
Ren	narks:		1	·					
ε		39 -			Description				
Depth (A)	Sample ID#	Geiger Reading (mR/br)			•				
ă	Sam ₁	<u> </u>							
ļ			003404	a della publica ess	an and the second				
5	None Taken	Background (0.02)	1 -		-	ng of wood, medical			
_	Takeu	(0:02)	-i	t, plastic, concrete, brick, metal, and paper; soil consisting own silt, dark gray fine-grained sand, and crushed rock; dry					
	None	Background	to mo	-					
10	Taken	(0.02)	@ 10'	OVM readings gr	eater than 10 X b	ackground.			
	None	Background							
15	Taken	(0.02)			~				
	None	Background	ĺ						
20	Taken	(0.02)							
		1	İ						
	None	Background	Ī						
25	Taken	(0.02)							
	None	Background							
30	Taken	(0.02)							
	None	Background							
35	Taken	Background (0.02)	34.0-40.0"	Vative Alluvium	dark grav plastic	lay grading to			
		,	_	' Native Alluvium: dark gray plastic clay grading to rey silt, moist.					
Ì	None	Background	, ,						
40	Taken	(0.02)	Boring term	inated @ 40 0'					

Taken

(0.02)

Radiological samples not collected during boring activities.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater not encountered during boring activities.

Boring terminated @ 40.0

	(Soil] Le			ıg	M	A	MCI Hai	r <u>en</u>		
		Borii WL	_			Project No/Na			Page:		
_			,-23	0	 -	07.0803035.003			[l of l		
	rvFinish 2/95	Pate				Site Name and Location West Lake Landfill; Bridgeton, Missouri					
_	Iling Con	ractor				Boring Location		Area 2			
1	lling Servi		LUA			Ground Surface Elevation: 466.2					
-	ller					Northing: 1070705.96					
Bru	ce Murphy	,				Easting: 514916.28					
_	lling Equi					McLaren/Hart Geologist/Office					
LD	H-80T Dri	ll Rig Le	rge [)iame	ater Auger		Tim Biggs/St	Louis			
·	Size/Type			. –	Sample M		T.D. Borebole	Well Installed	?		
_	OD Solid	Auger			Grab from	Augers	34'	None Installed			
Remarks:											
Depth (ft)	Sample ID #	Gelger	Reading	(mR/br)			Description				
5	None Taken	Backg (0.04)		1	tires,	and wire; soil con	sisting of brown s	ing of wood, shred			
	None	Backg	round	i i	graine	ed sand; dry to mo	nist.				
10	Taken	(0.04)			@ 10.	.0-25.0' soil disco	iored; petroleum	odor, OVM readin	g		
					greate	r than 10 X back	ground.				
15	None Taken	Backg (0.04)		1			-				
	None	Backg	round	.							
20	Taken	(0.04)									
25	None Taken	Backgr (0.04)	round	ı							
	None	None		{	27.0-34.0	Vative Alluvium:	dark gray tine-g	rained sand; moist	to		
30	Taken	Taken			wet.						
	None	Backgr	ound		@ 34	wet					
35	Taken	(0.04)	J 114	- 1	•	inated @ 34.0'					

Radiological samples not collected during boring activities; downhole logging indicated elevated gamma readings from 3.5-9.0'.

Non-radiological samples not collected during boring activities.

Perched water not encountered during boring activities.

Groundwater encountered at 34 feet below ground surface,

		L)g		ıg			MCIA Hai			
Boring No.						Project No./Name			Page:		
		WI	24-ي	0		07.0803035.003.002			1 of 1		
Start/Finish Date						Site Name and Location					
9/28/95						West Lake Landfill; Bridgeton, Missouri					
ling C	etr	ector				Boring Location: Area					
ing Se	vice	Comp	алу			Ground Surface Elevation: 468.5					
er						Northing: 1070320.97					
e Mun	hy					Easting:	515315.69				
ing Ed	aipe	Dent					McLaren/Hart Geologist/Office				
-80T I	Drill.	Rig L	irge [iame	ter Auger	Tim Biggs / St. Louis					
•	•				1 '		T.D. Borebole	Well Installed?			
	id A	nger			Grab from Augers 11' None Installed						
Sample	# Q!	Gelger	Reading	(mR/hr)	Description						
	40	1 -									
2,		(0.01-	0.04)		J J J J J J J J J J J J J J J J J J J						
None	None Background				1						
					9						
None		Backg	ackground			vdoned @ 11 Cf					
	ing Co ing Ser er e Murring Ecc-80T I izze/Ty DD Solo arks:	ing Coatra ing Service er e Murphy ing Equipe -80T Drill ize/Type DD Solid Ar arks: WL-240 5' None Taken	WI VFinish Date 195 ing Contractor ing Service Comper e Murphy ing Equipment -80T Drill Rig, La ize/Type DD Solid Anger arks: WL-240 Backg 5' (0.01- None Backg Taken (0.01- None Backg	WL-24 VFinish Date 195 Iing Contractor Iing Service Company er e Murphy Iing Equipment -80T Drill Rig, Large E Ize/Type DD Solid Anger arks: WL-240 Background 5' (0.01-0.04) None Background Taken (0.01-0.04)	WL-240 WFinish Date 195 Ing Contractor Ing Service Company er e Murphy Ing Equipment -80T Drill Rig, Large Diame Ize/Type DD Solid Anger arks: WL-240 Background 5' (0.01-0.04) None Background Taken (0.01-0.04)	WL-240 WFinish Date P55 Ing Contractor Ing Service Company er e Murphy Ing Equipment -80T Drill Rig, Large Diameter Auger Ize/Type Sample M. Grab from arks: WL-240 Background 5' (0.01-0.04) None Background Taken (0.01-0.04) None Background Mone Background A 5	WL-240 WFinish Date Site Name and I West Lake Landfiling Courtractor Ing Service Company er Murphy Background Sample Method Grab from Augers Bright Sample Method Grab from Augers WL-240 Background Sample Method Grab from Sample Method G	WL-240 WFinish Date Of 1.0803035.003.002 West Lake Landfill; Bridgeton, Missing Contractor West Lake Landfill; Bridgeton, Missing Service Company Ground Surface Elevation: Northing: Easting: McLaren/Hart Contractor Tim Biggs / St. L. WL-240 Background Surface Elevation: McLaren/Hart Contractor Tim Biggs / St. L. T.D. Borehole It' Description Description WL-240 Background Surface Elevation: McLaren/Hart Contractor Tim Biggs / St. L. T.D. Borehole It' WL-240 Background Surface Elevation: McLaren/Hart Contractor Tim Biggs / St. L. T.D. Borehole It' WL-240 Background Outleded to the surface Elevation: McLaren/Hart Contractor Tim Biggs / St. L. T.D. Borehole It' WL-240 Background Outleded to the surface Elevation: WL-240 Background Outleded to the surface Elevation: Water Contractor Water Contractor Outleded to the surface Elevation: Water Contractor Outleded to the surface Elevation: Note Background Outleded to the surface Elevation: Outleded to the surface Elevation: Note Elevation: Outleded to the surface Elevation: Note Elevation: Outleded to the surface Elevation: Note Elevation: Outleded to the surface Elevation: Note Elevation: Outleded to the surface Elevation: Note Elevation: Outleded to the surface Elevation: Outled to the surface Elevation: Outleded to the surface Elevation:	WL-240 VFinish Date VFinish Date Site Name and Location West Lake Landfill; Bridgeton, Missouri ing Contractor ing Service Company er Murphy Easting: Northing: 1070320.97 Easting: Northing: 1070320.97 Easting: Site Name and Location Area 2 Ground Surface Elevation: 468.5 Northing: 1070320.97 Easting: McLarea/Hart Geologist/Office Tim Biggs / St. Louis ize/Type Sample Method T.D. Borehole Well Installed? None Installed WL-240 Background Site Name and Location Area 2 Ground Surface Elevation: McLarea/Hart Geologist/Office Tim Biggs / St. Louis It' None Installed? None Installed Wood; soil consisting of dark gray silty clay and crushed rox dry to wet. None Background Taken None Background Background None Background None Background Mone Background Background Mone Background Mone Background Mone Background Mone Background Mone Background Background Mone Background Mone Background		

Radiological samples not collected during boring activities.

Non-radiological samples not collected during boring activities.

Perched water encountered at 4.5 feet below ground surface.

Groundwater not encountered during boring activities.

	•	So	iI	Bo	rir	ıg	TY.	1	MCIA Hai	ren	
	Log								Hā	rt	
		1	Bor	iog N	0.		Project No./Na	me		Page:	
1	WL-241 Start/Finish Date						07.0803035.003.002 1 of 1				
Sta							Site Name and Location				
9/2	8/95						West Lake Landfill; Bridgeton, Missouri				
Drilling Contractor							Boring Location: Area 2				
Drilling Service Company							Ground Surface Elevation: 469.6				
Dri	ller						Northing: 1070319.84				
Bru	ce Murphy	y					Easting: 515100.73				
Dri	lling Equi	ipme	۵t			•	McLaren/Hart Geologist/Office				
LDI	H-80T Dn	il Ri	g, L	arge [Diam	eter Auger	Tim Biggs / St. Louis				
	Size/Type					Sample M		T.D. Borebole	Well Installed	?	
							Augers	40'	None installed		
Ren	narks:	- 1	_			T					
Depth (ft)	ple	Description									
Dep	Sample		<u>کو</u>	Reading	(mR/hr)				 		
5	WL-241	- 1		groun		0.0-40.0' Landfill Debris: trashy debris consisting of glass, insulation, wood, cardboard, paper, wire, rubber, plastic, and wood; soil					
5 5' (0.01-0.04)						consisting of dark gray clay and silty clay to silty fine-grained					
	WL-241	В	ack	ground	d	sand, and crushed rock; dry to wet.					
10	10.	(0	.01	-0.041)			-			
	WL-241	В	Background								
15	15'	- 1	(0.01-0.04)								
	WL-241	B	ackį	ground	i			Č			
20	20'	(0	-10.	0.04)							
	WL-241			ground							
25	25'	1(0	.01-	0.04)							
	WL-241	- 1		zround							
30	30	(0	01-	0.04)							
	WL-241			ground	ı						
35	35'	10	.01-	0.04)	\dashv						
	WL-241	Ba	ckg	ground	,	@ 40'	wet				

40 40

Radiological samples collected at 5 and 15 feet below ground surface; downhole logging indicated elevated gamma readings from 4.0-8.5°.

Boring abandoned @ 40.0'

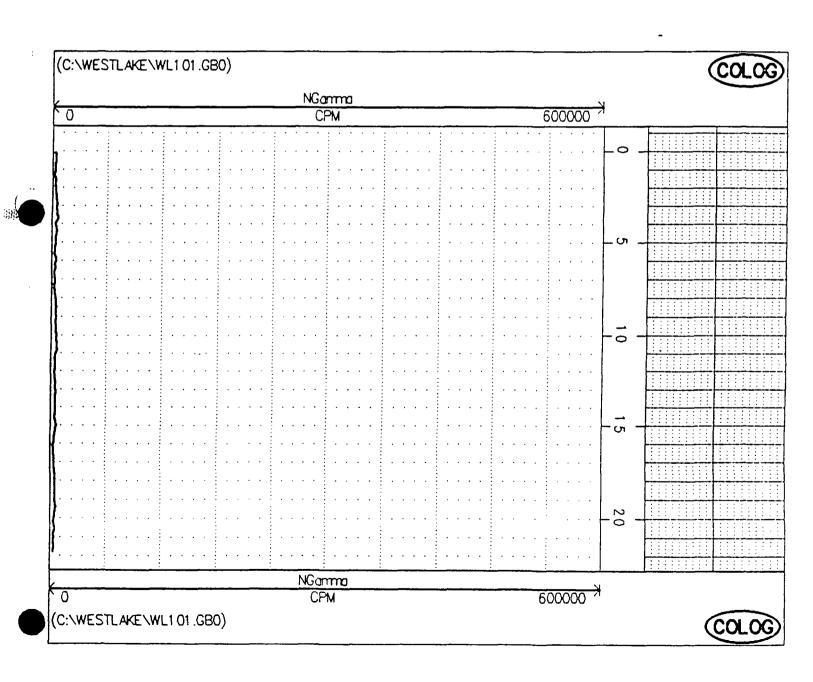
Non-radiological samples not collected during boring activities.

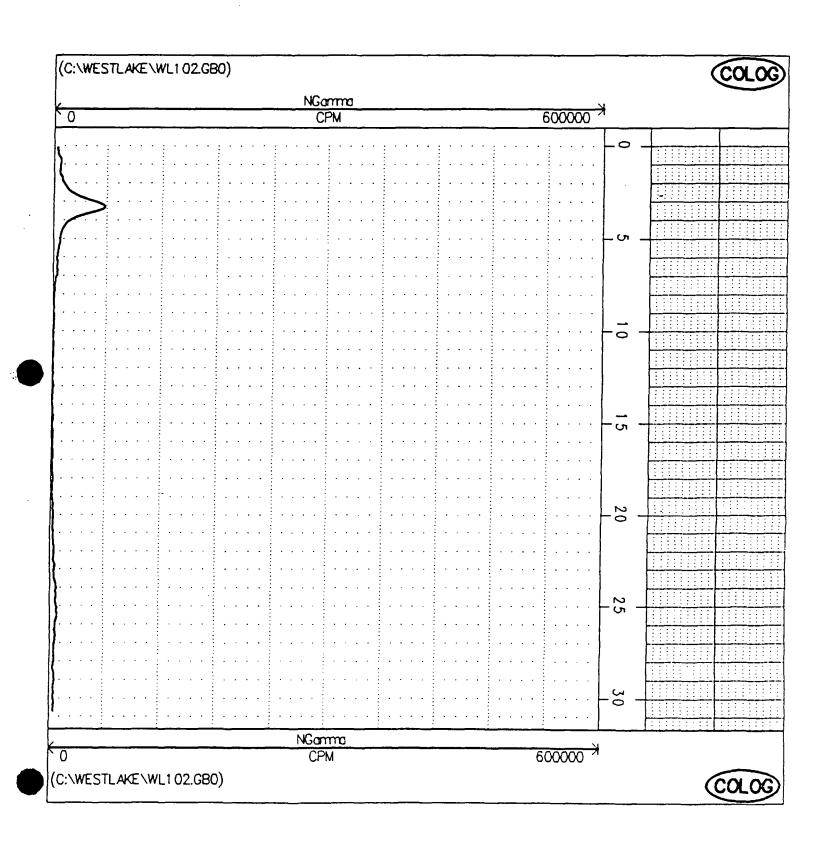
Perched water not encountered during boring activities.

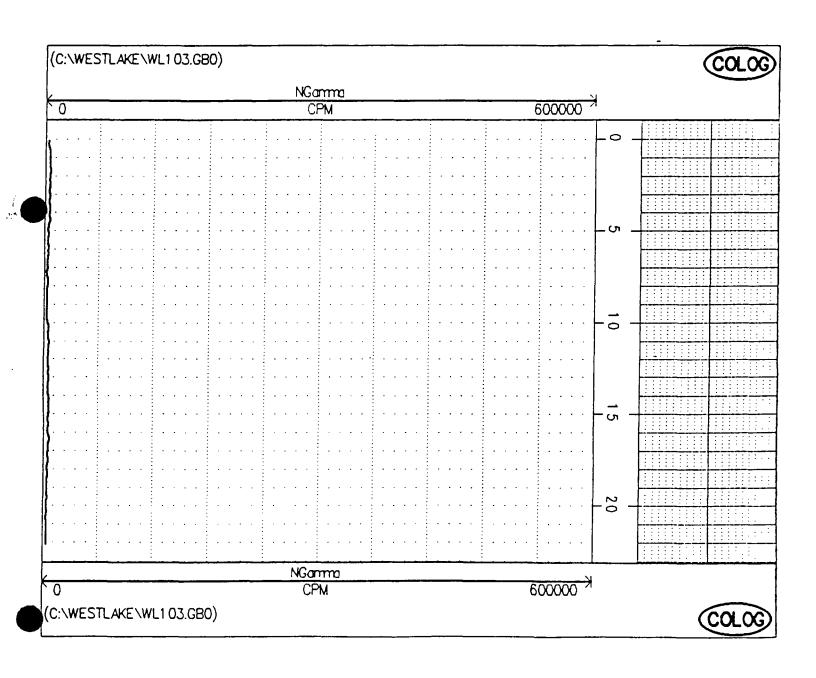
(0.01-0.04)

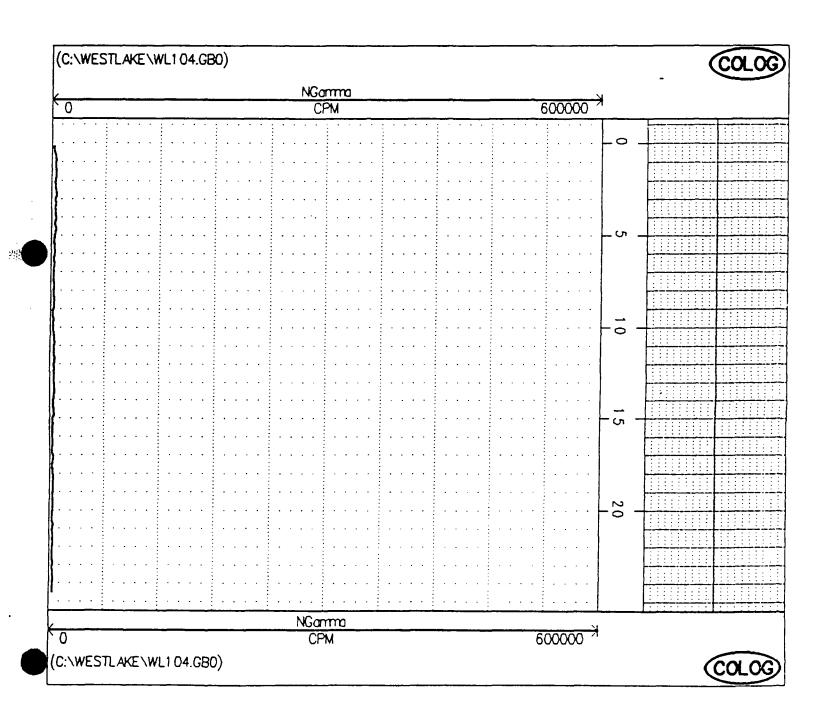
Groundwater encountered at 40 feet below ground surface.

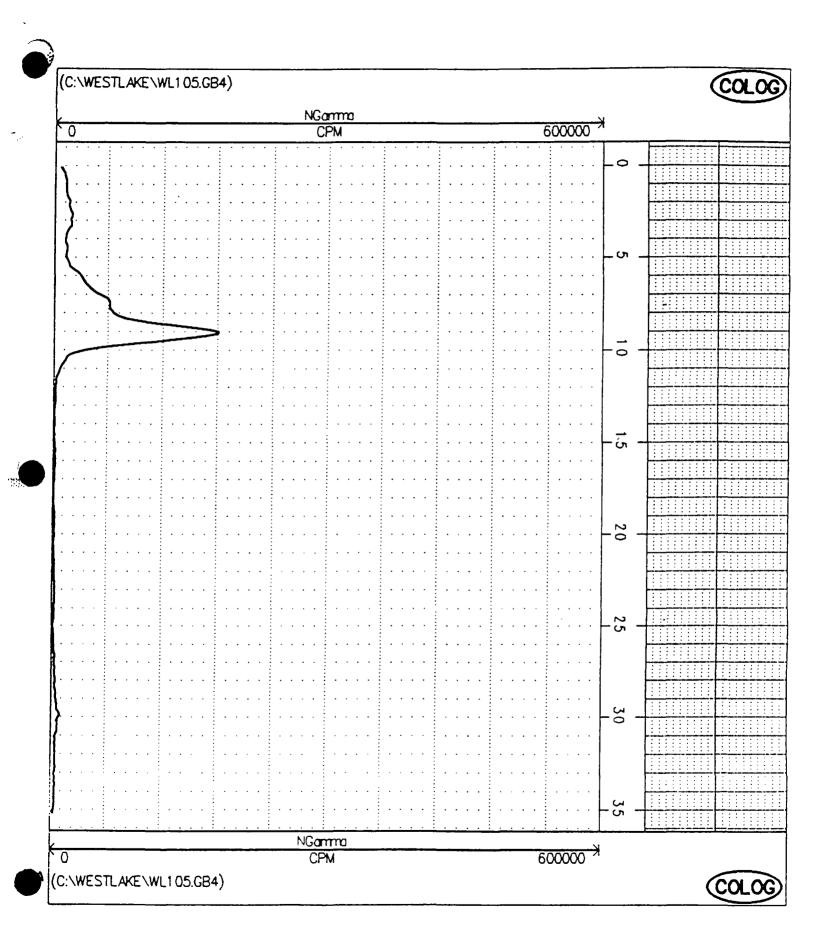
Area 1 Soil Boring Downhole Gamma Logs

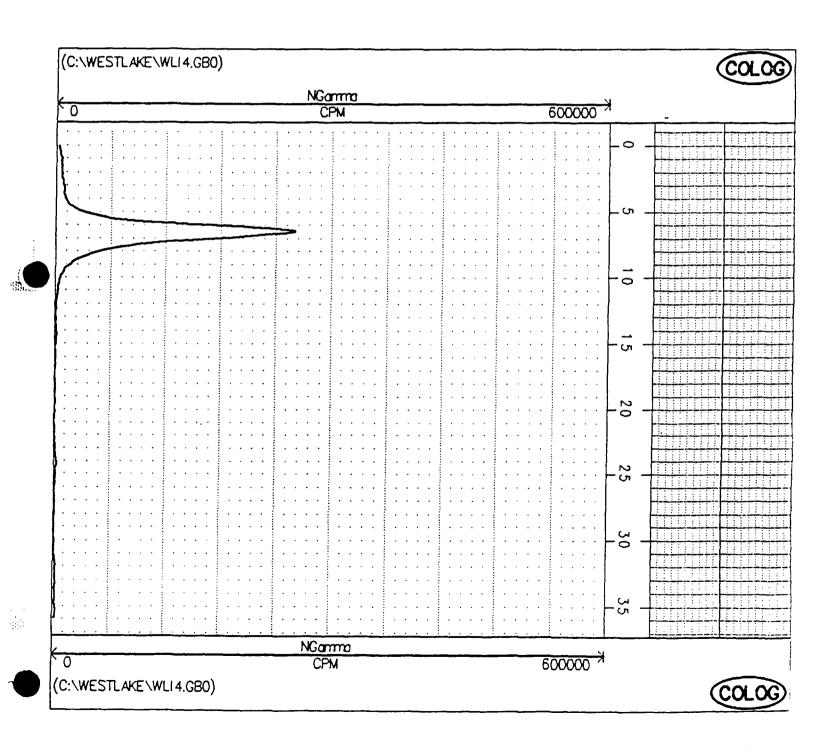


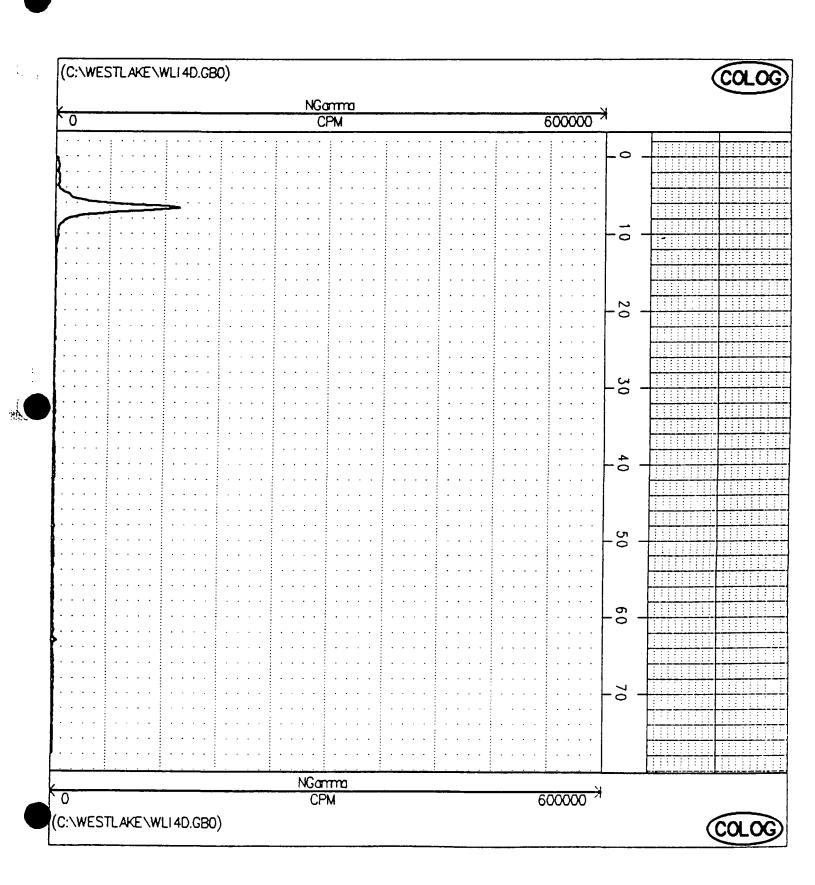


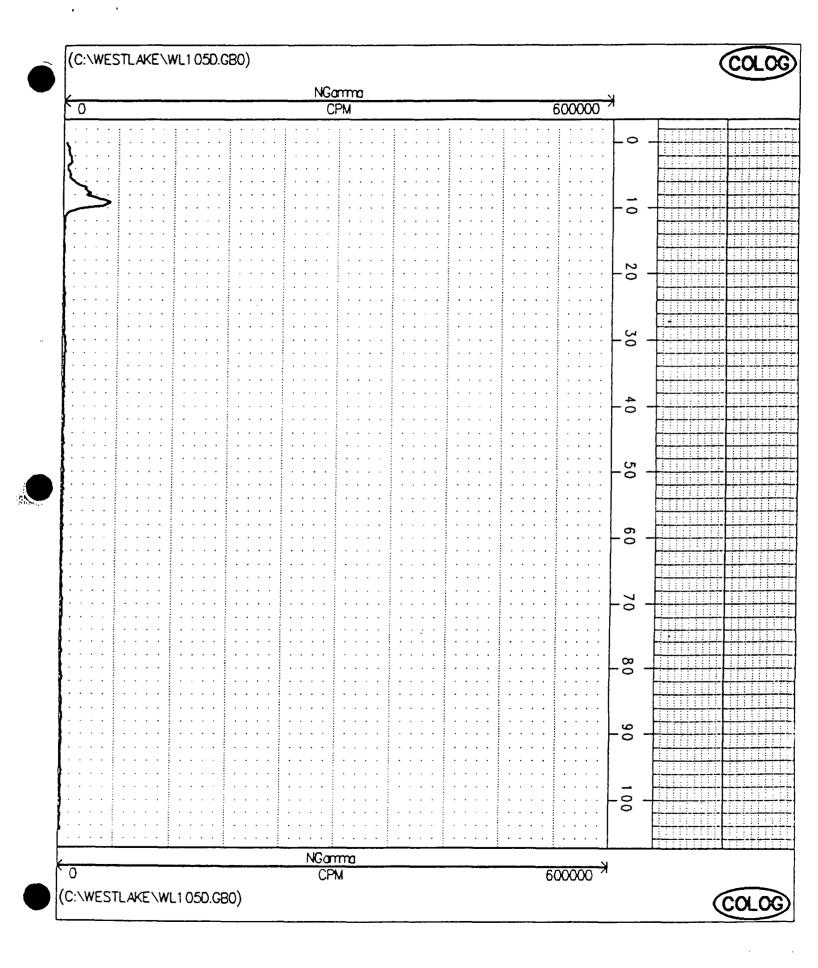


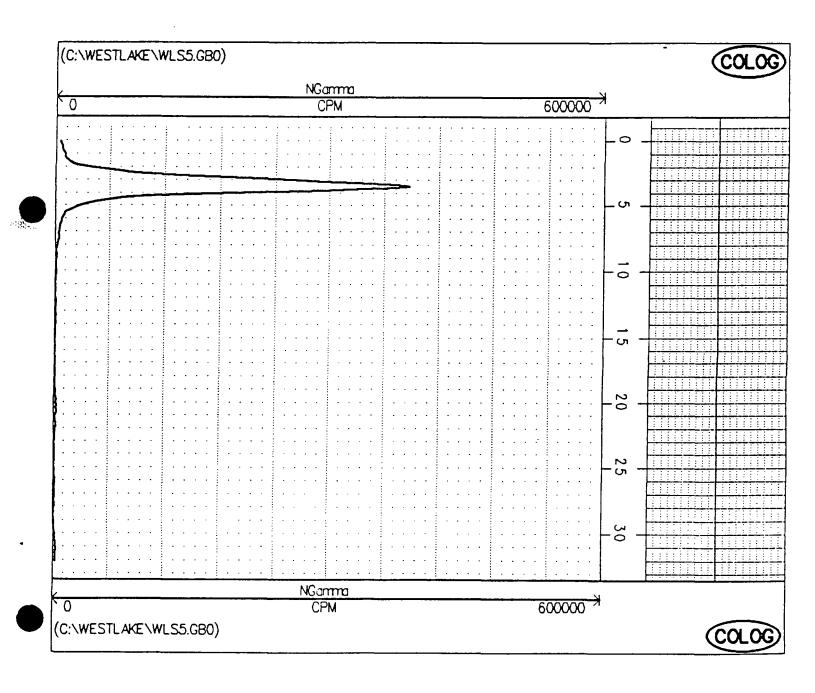


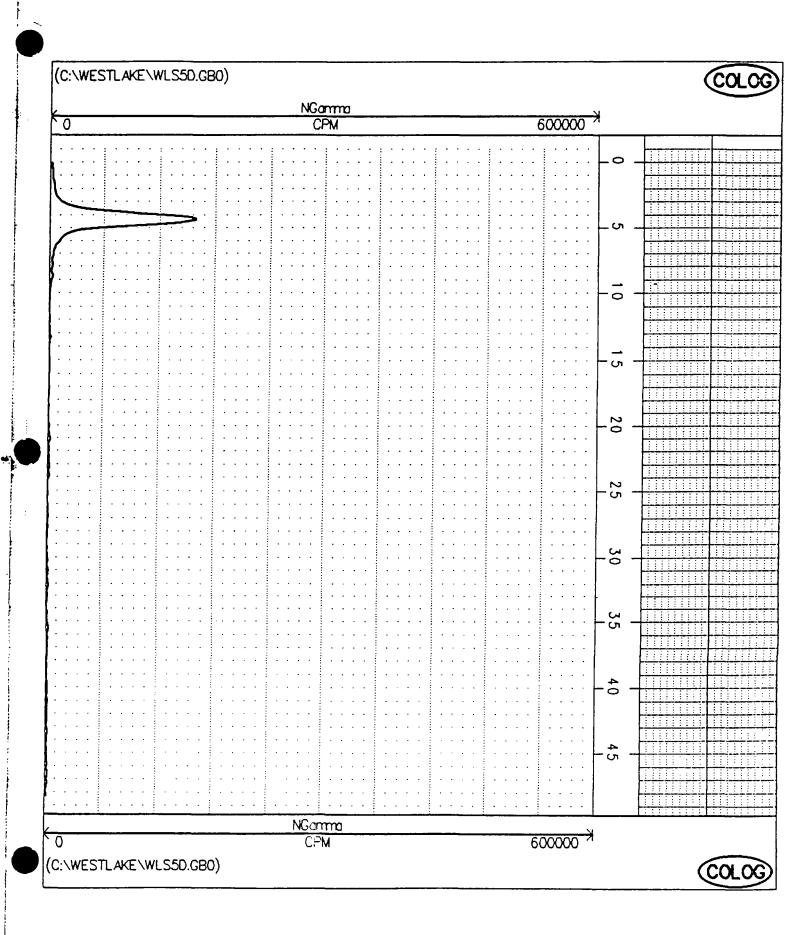


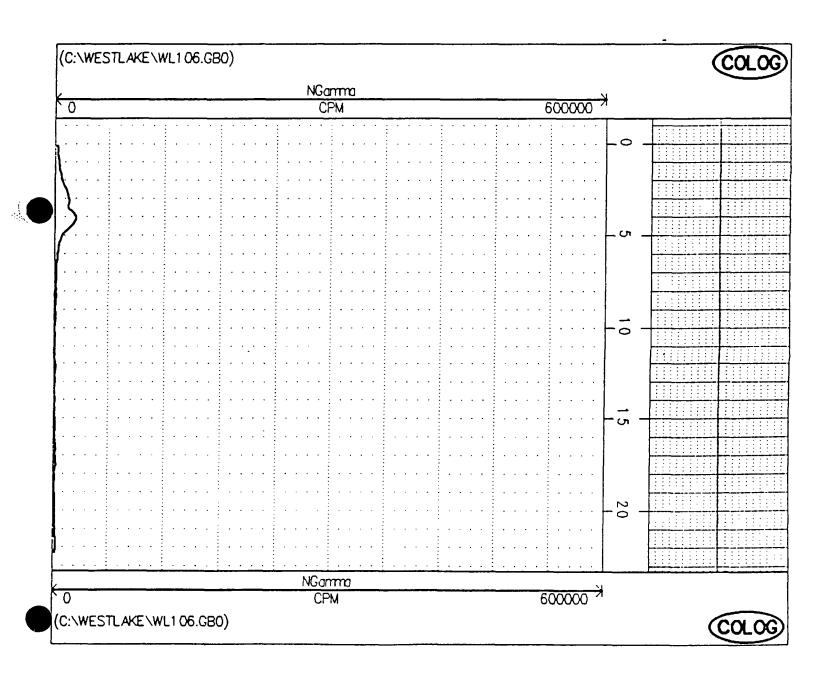




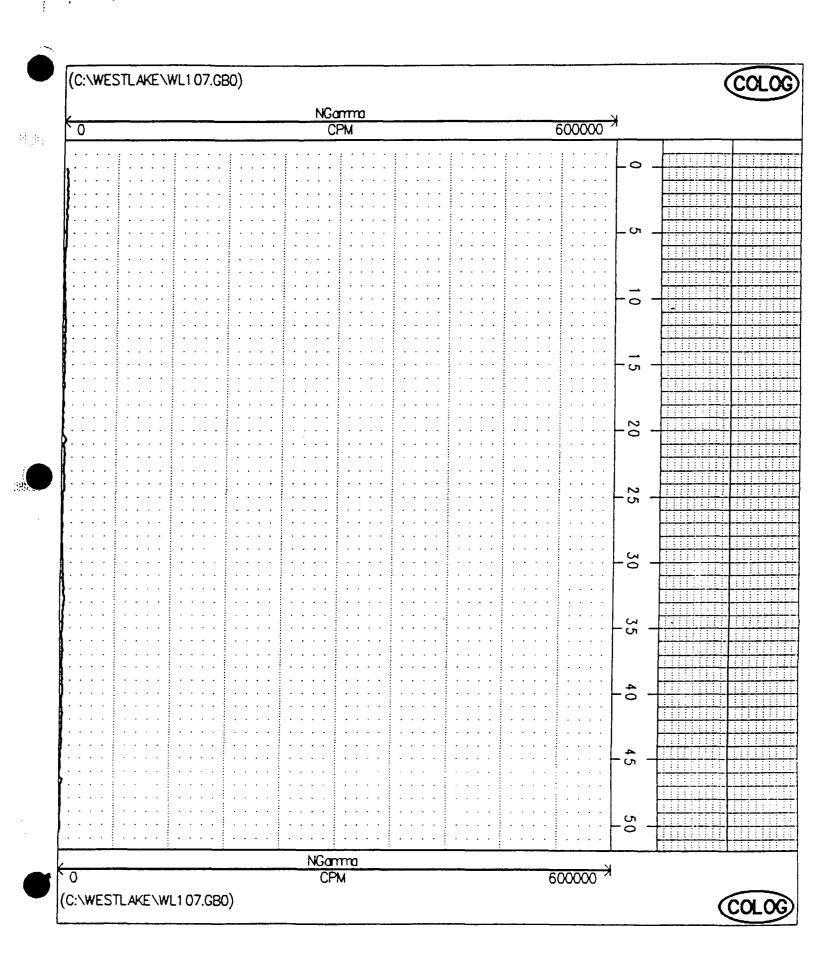


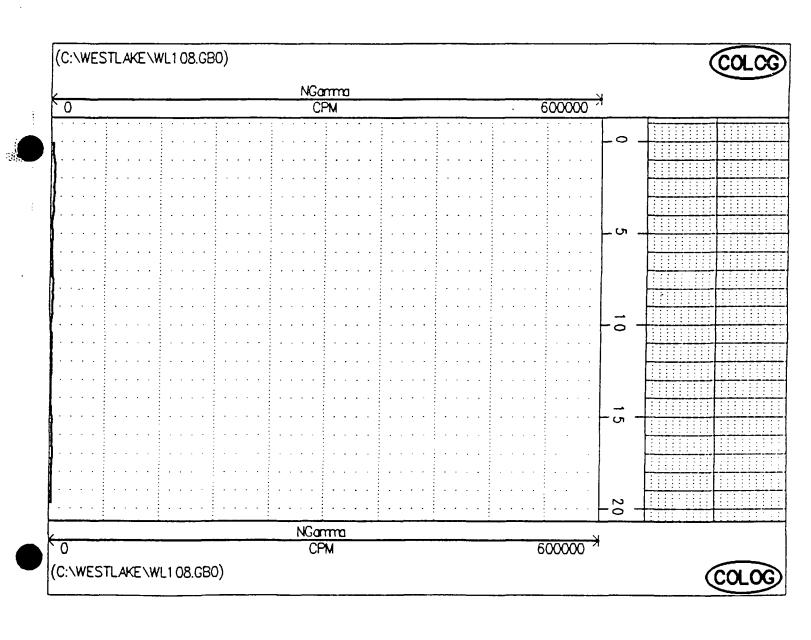


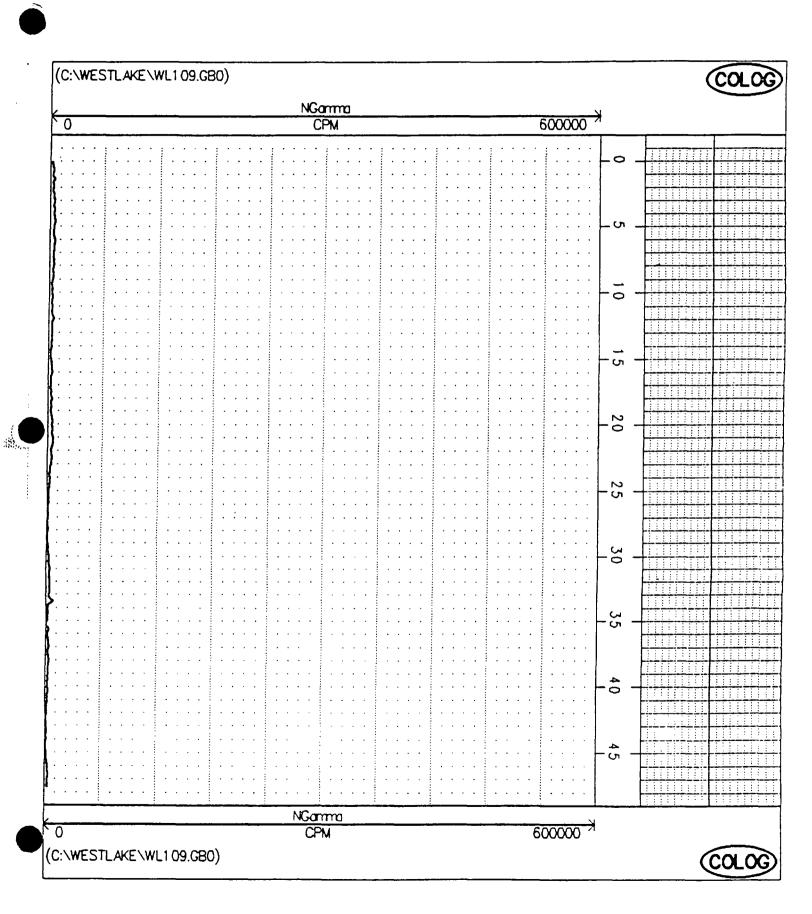


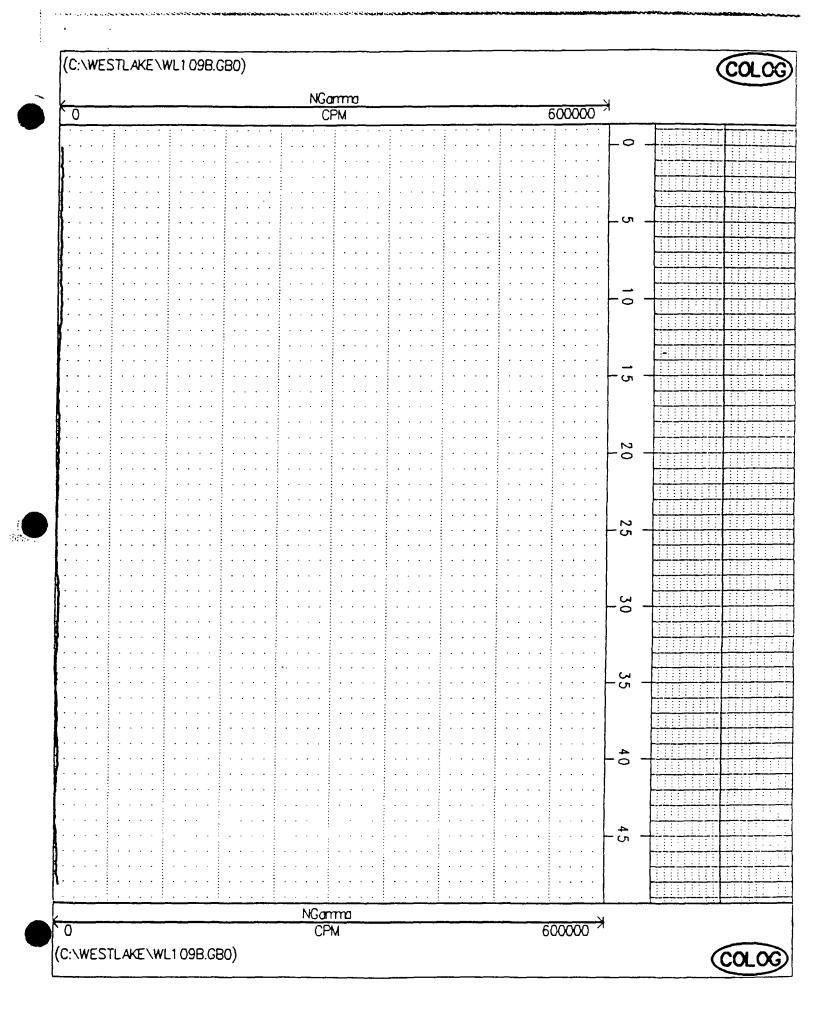


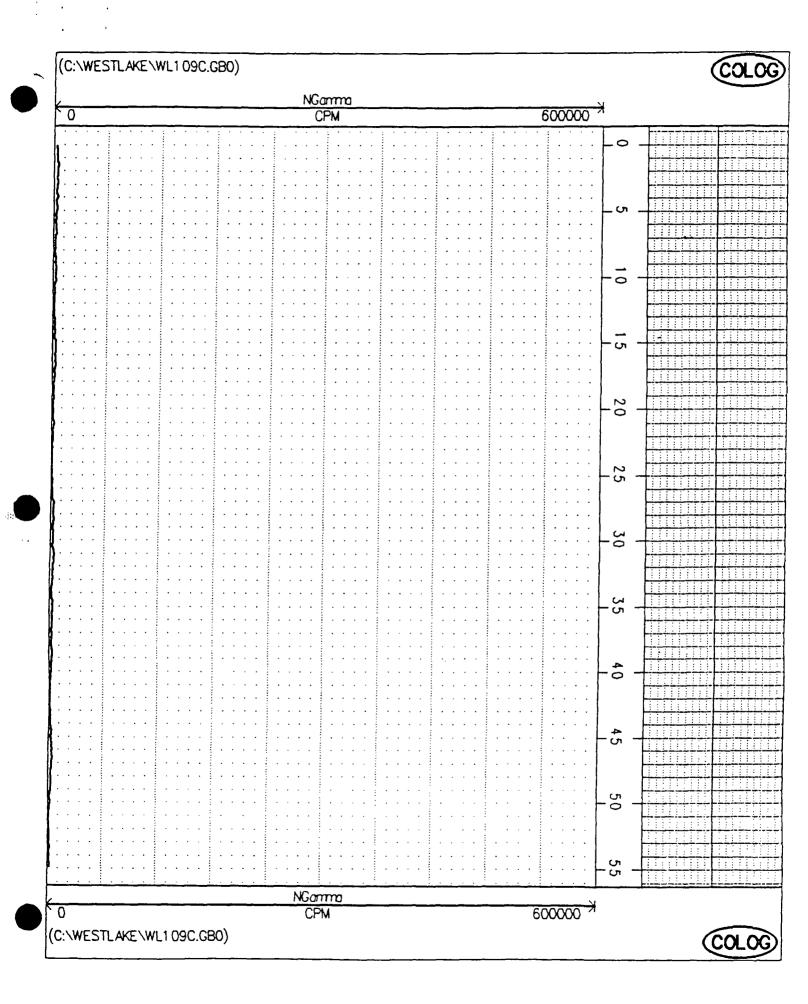
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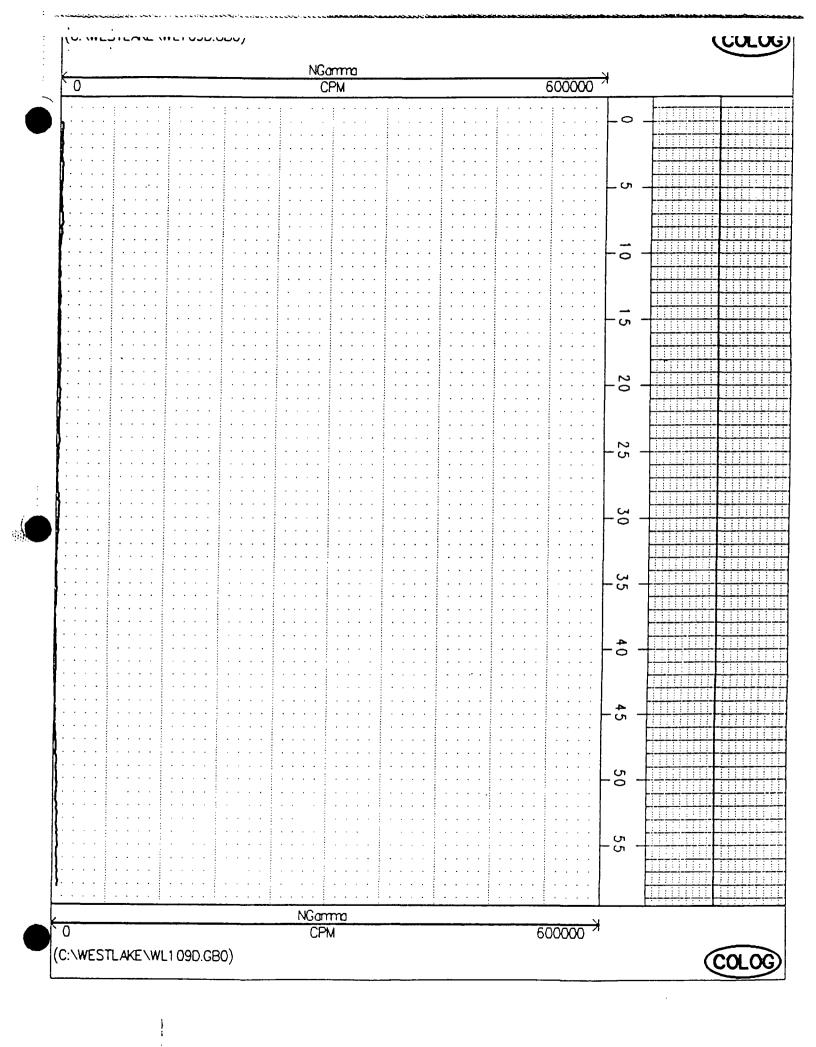


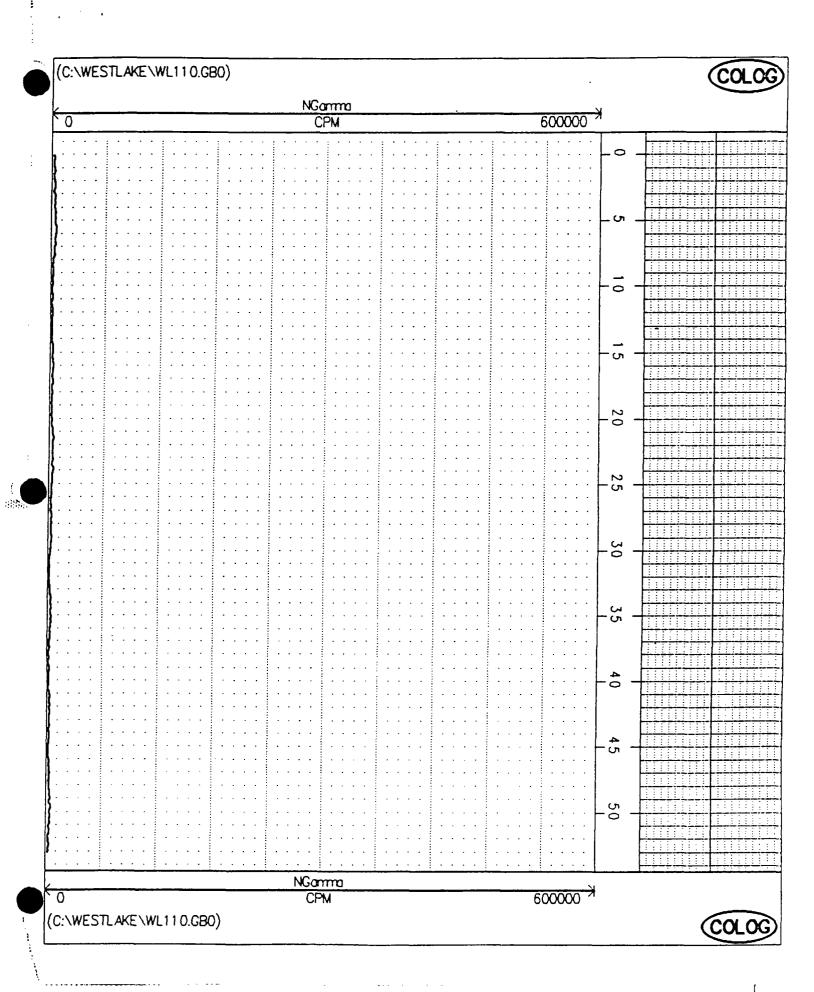


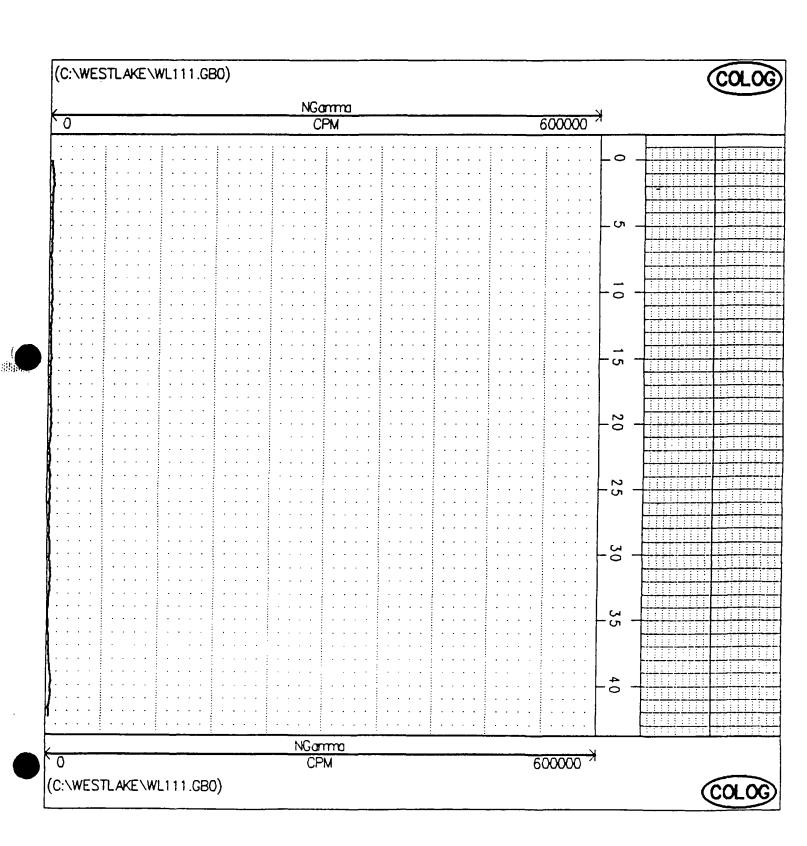


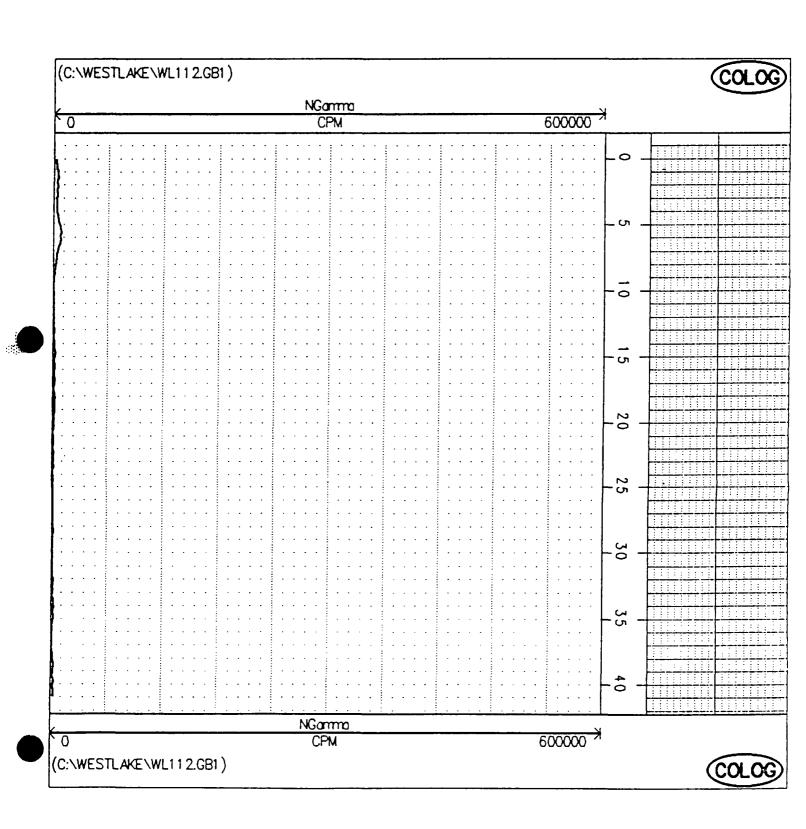


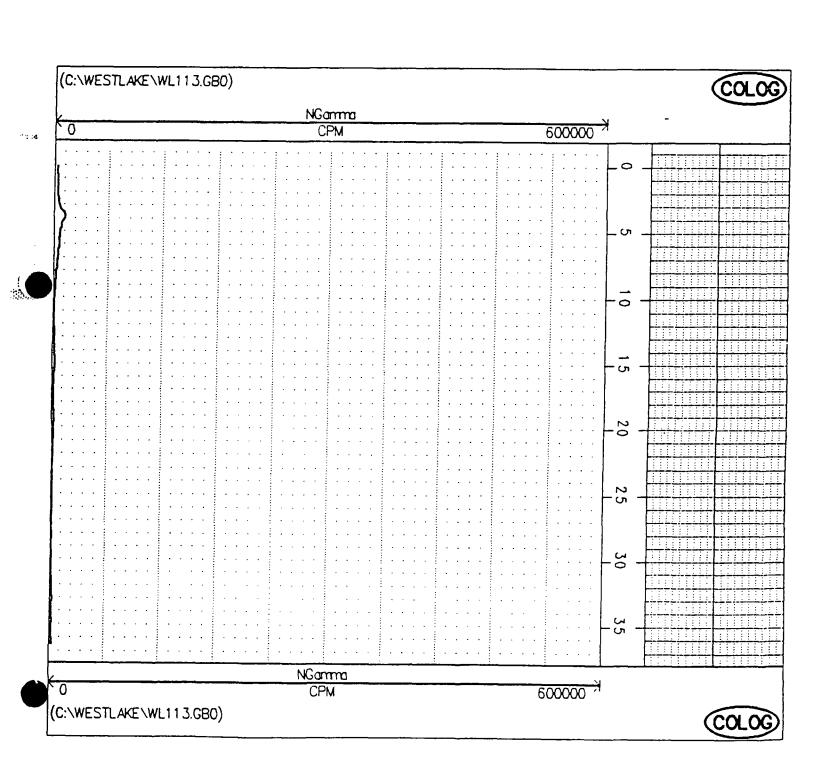


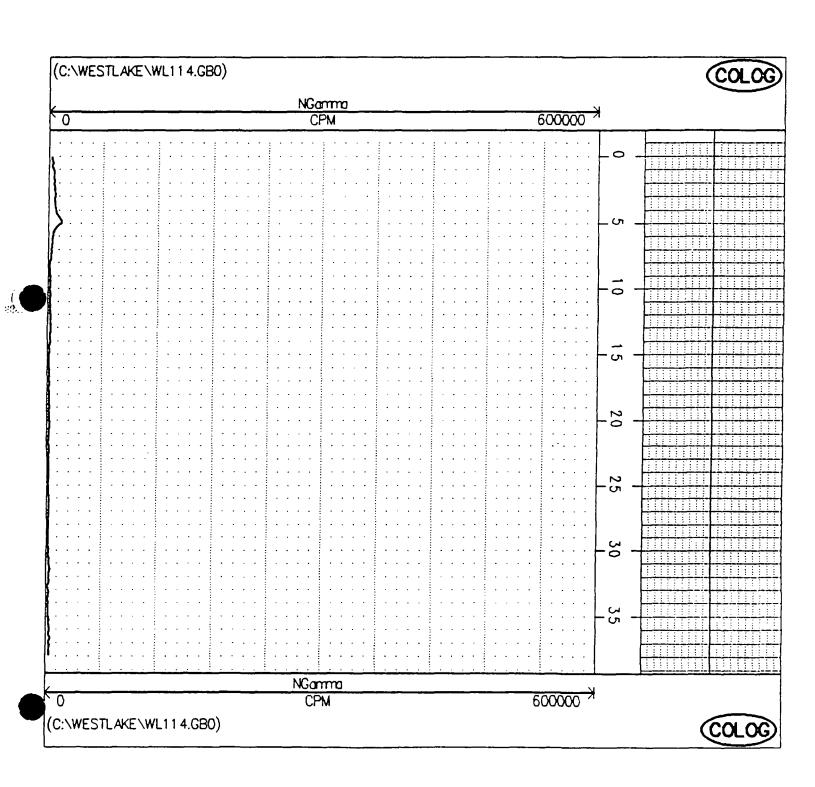


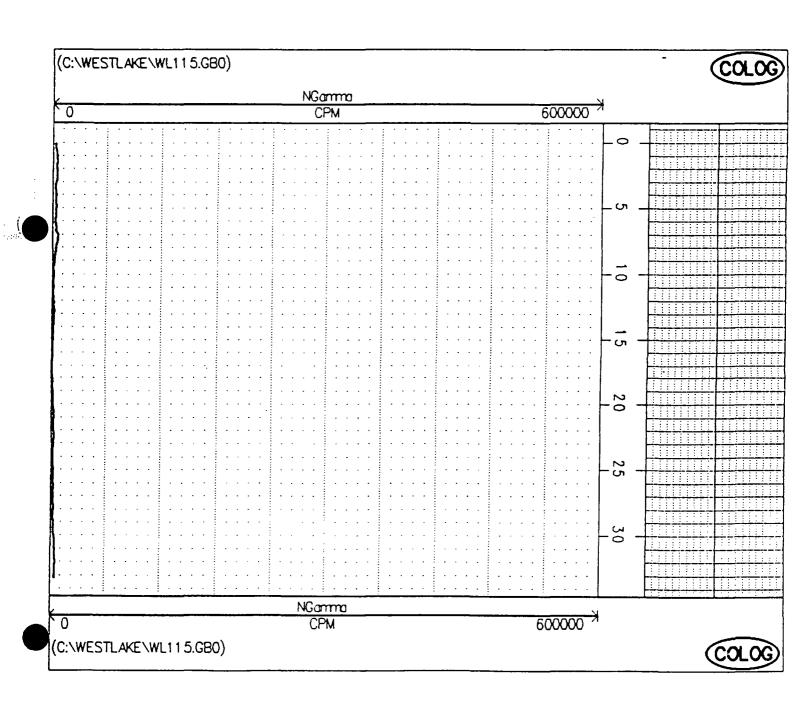


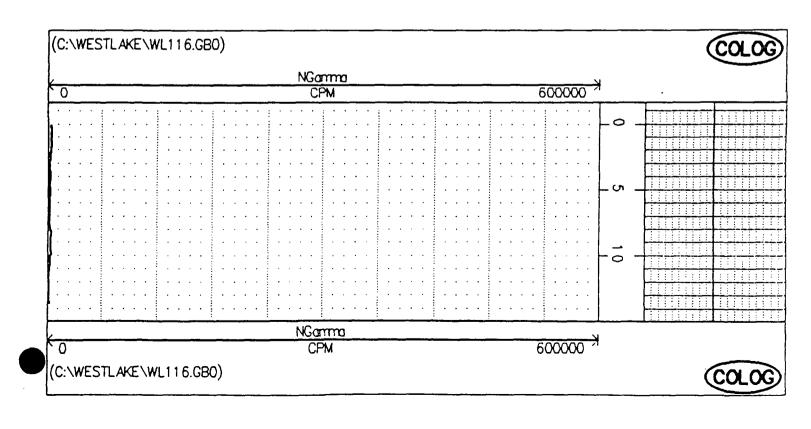


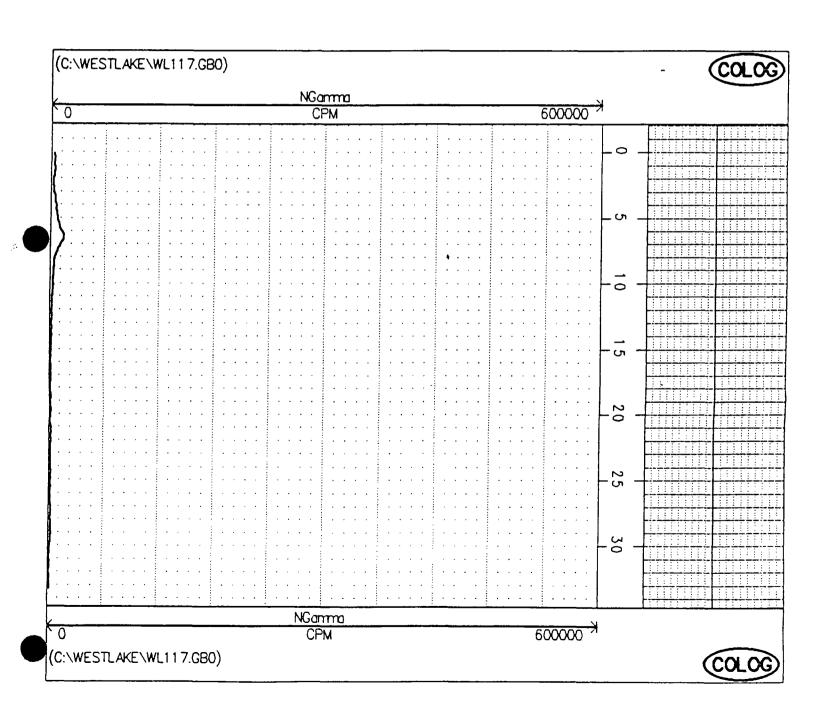


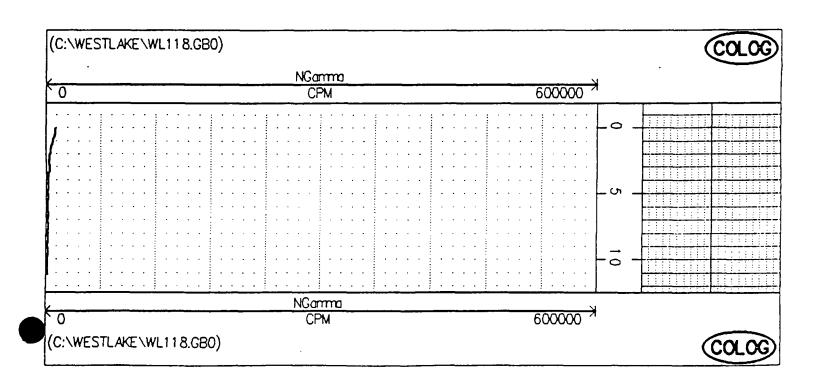


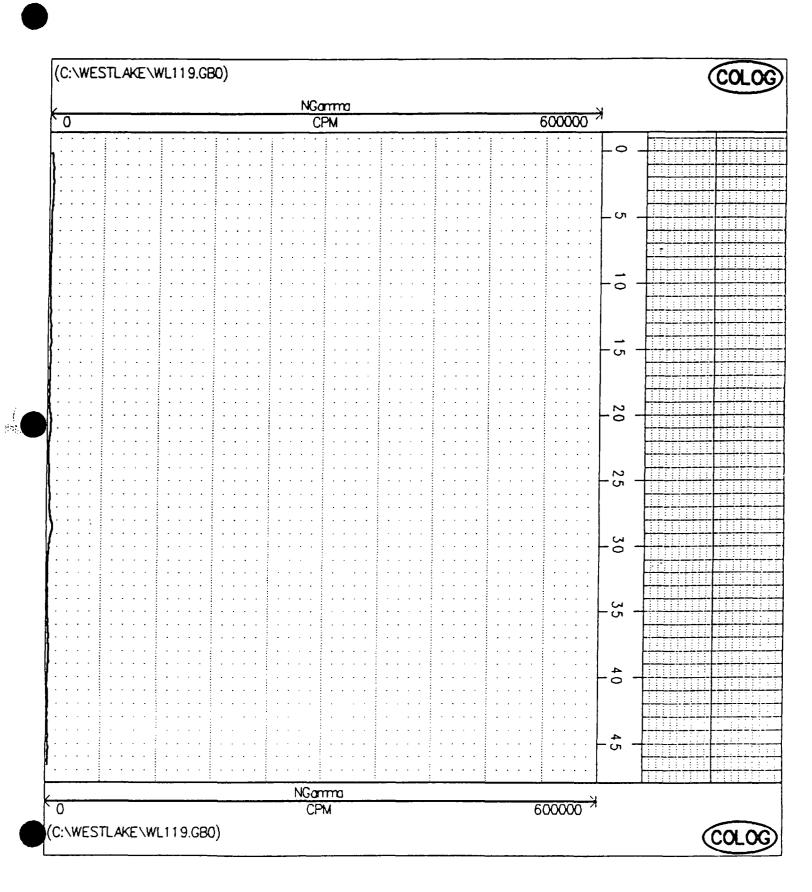






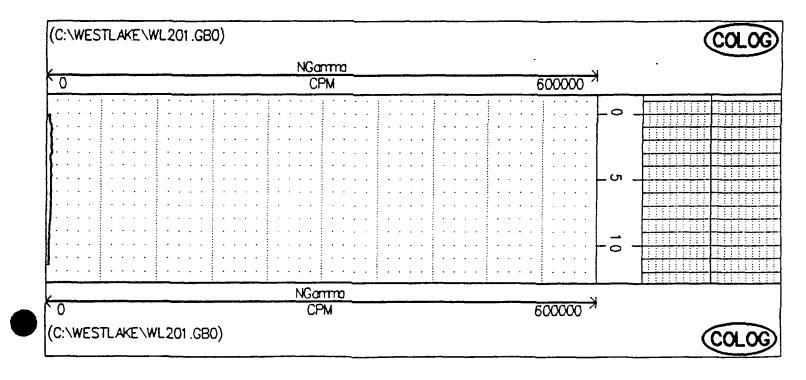






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Area 2 Soil Boring Downhole Gamma Logs



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NGamma

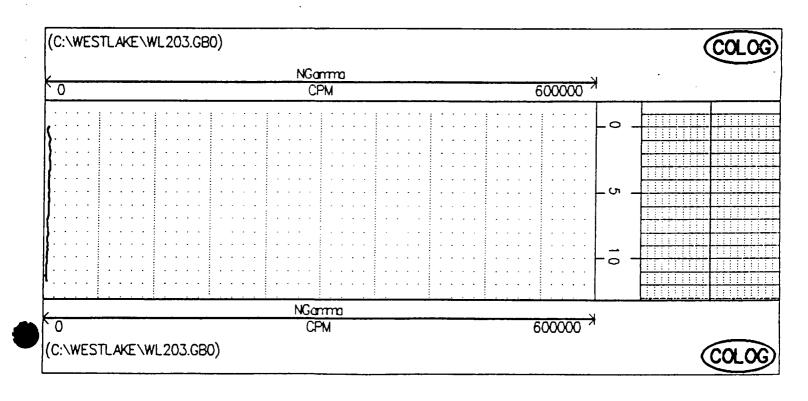
O CPM 600000

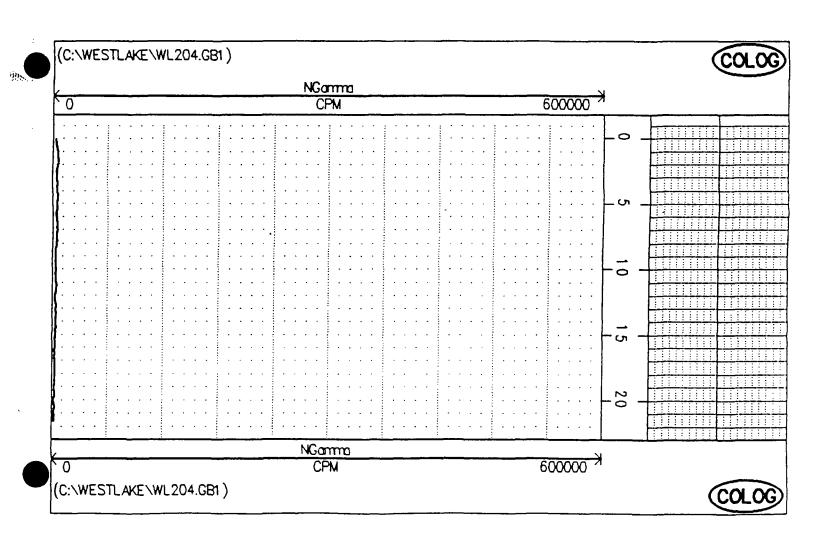
NGamma

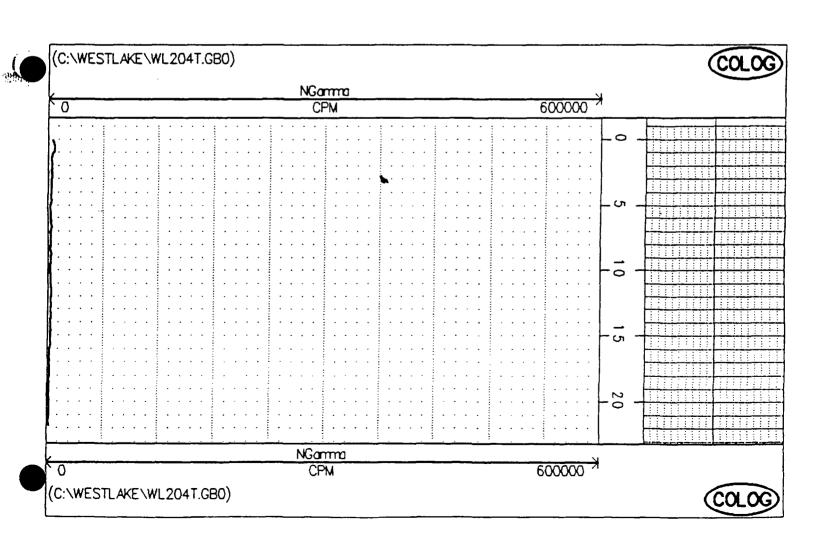
O CPM 600000

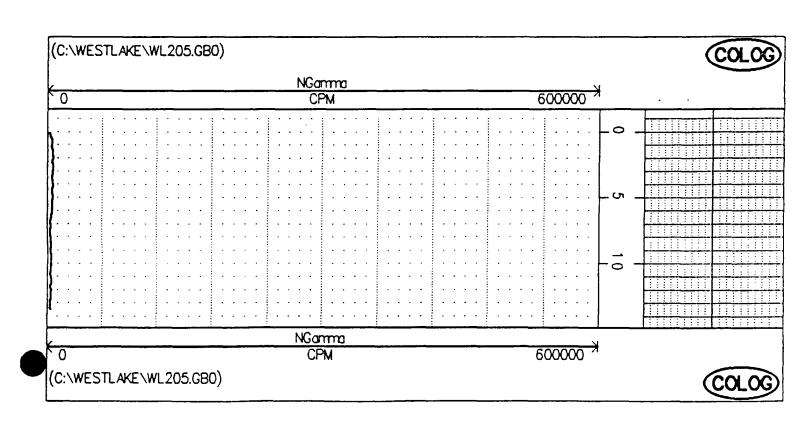
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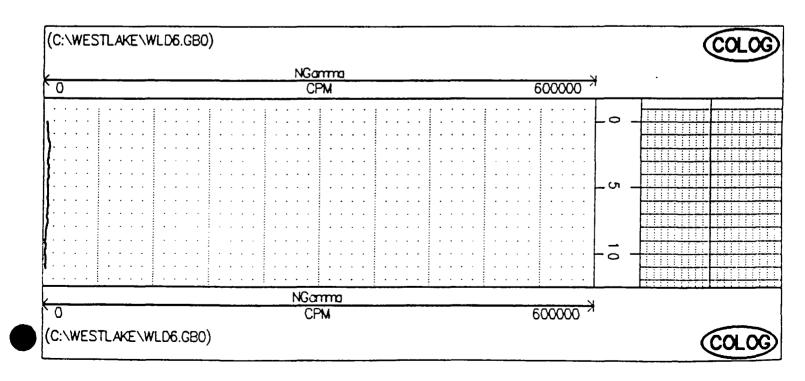
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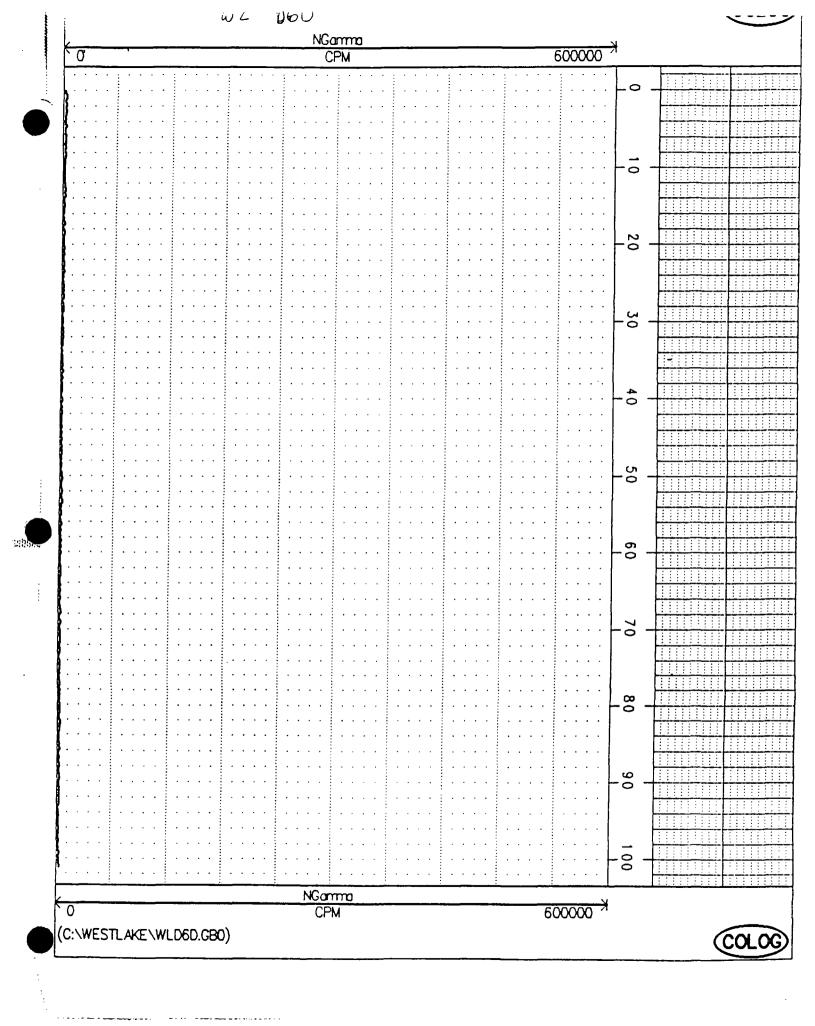




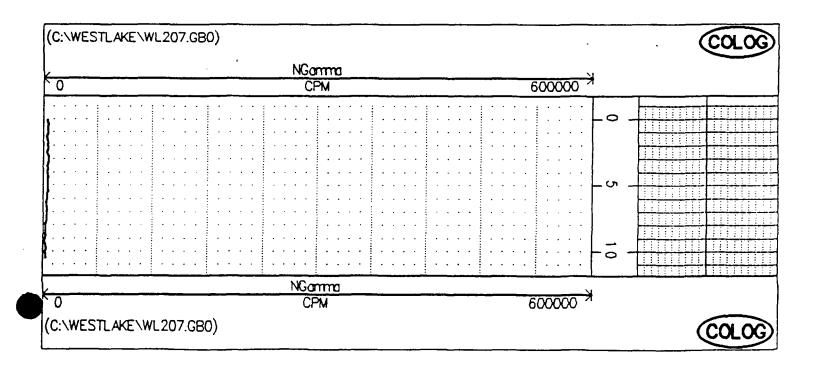


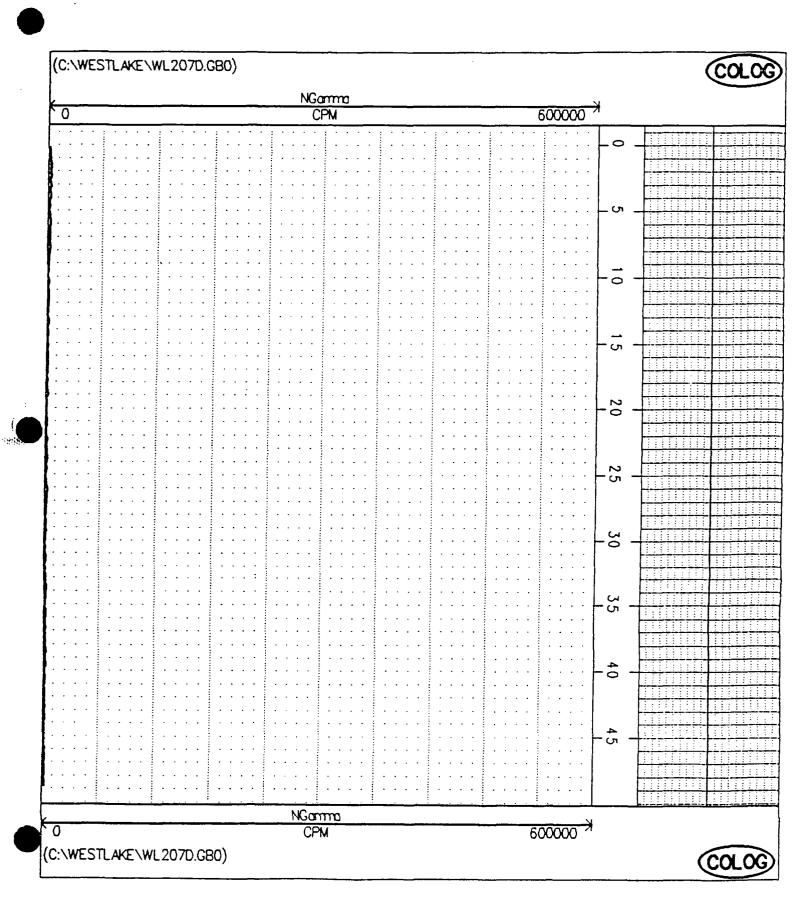


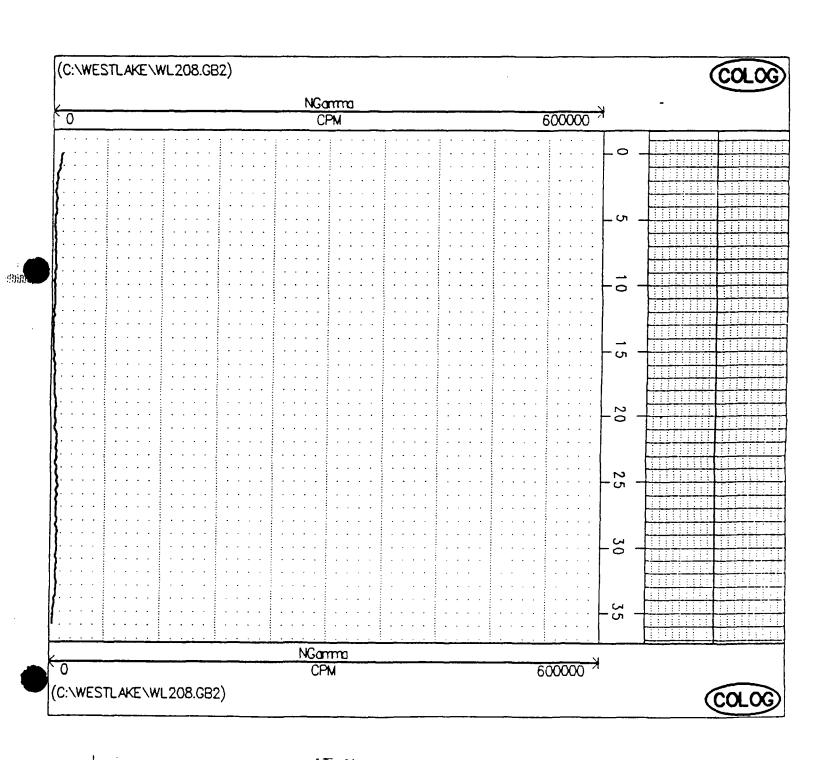


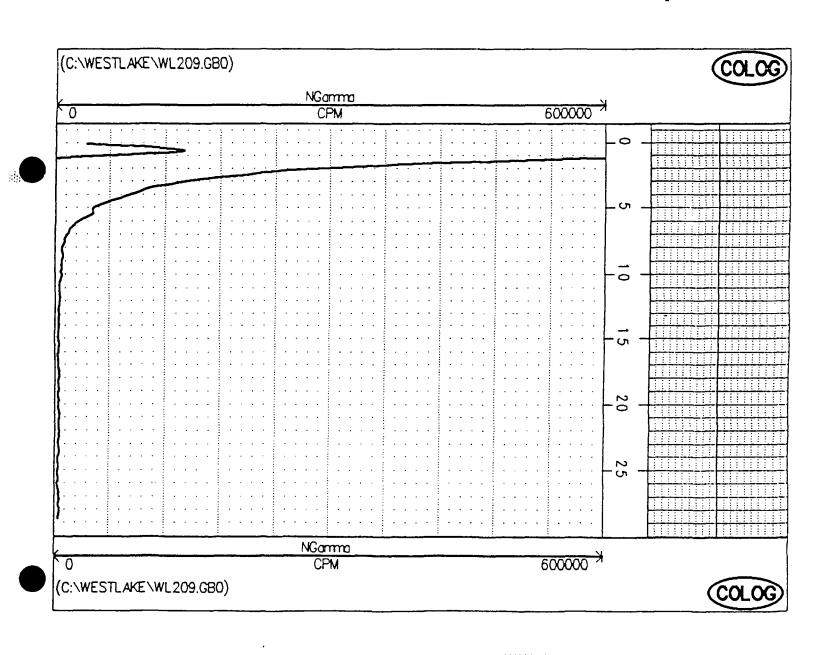


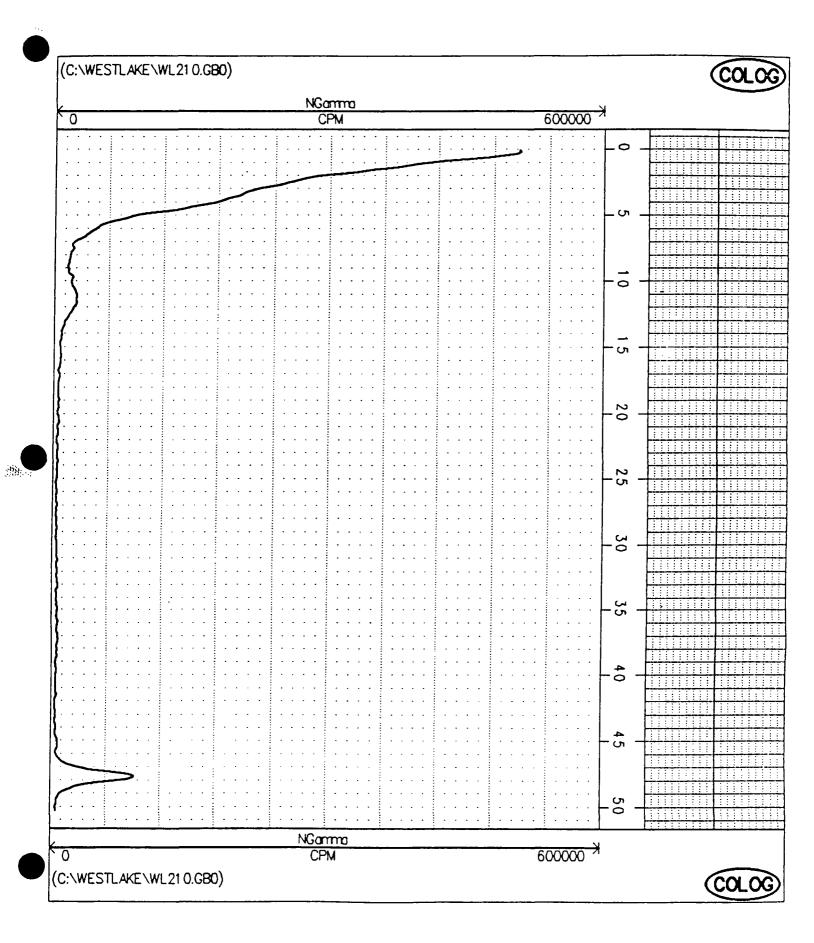


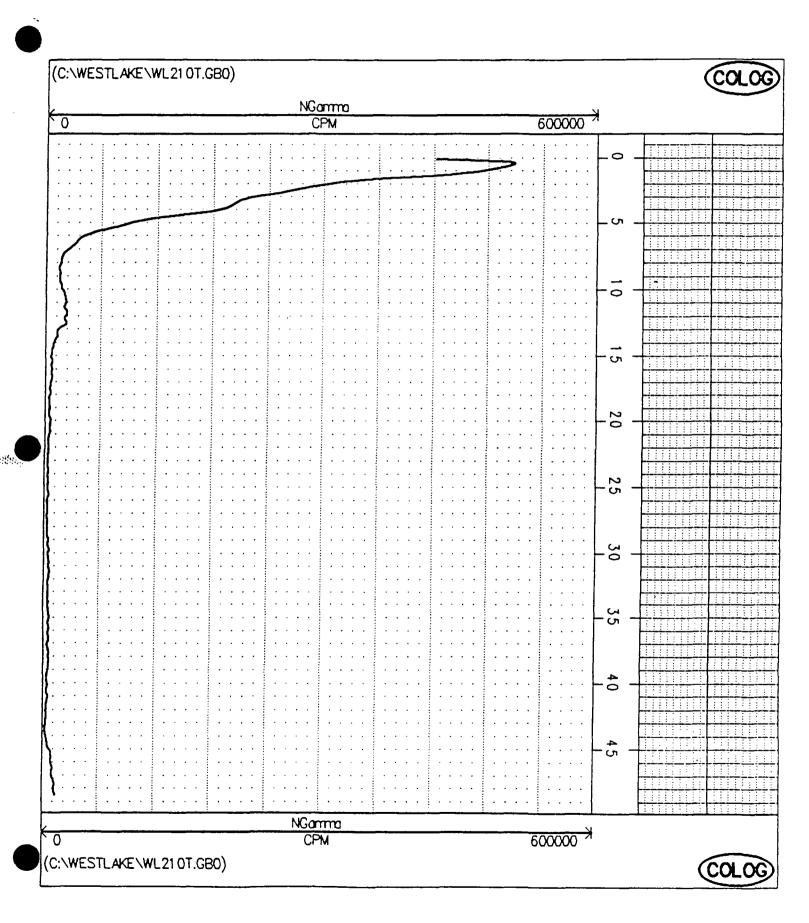


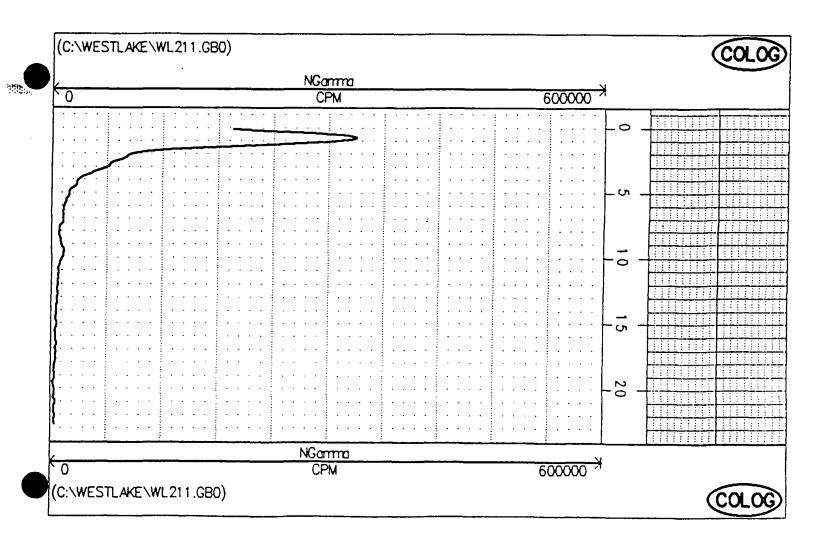


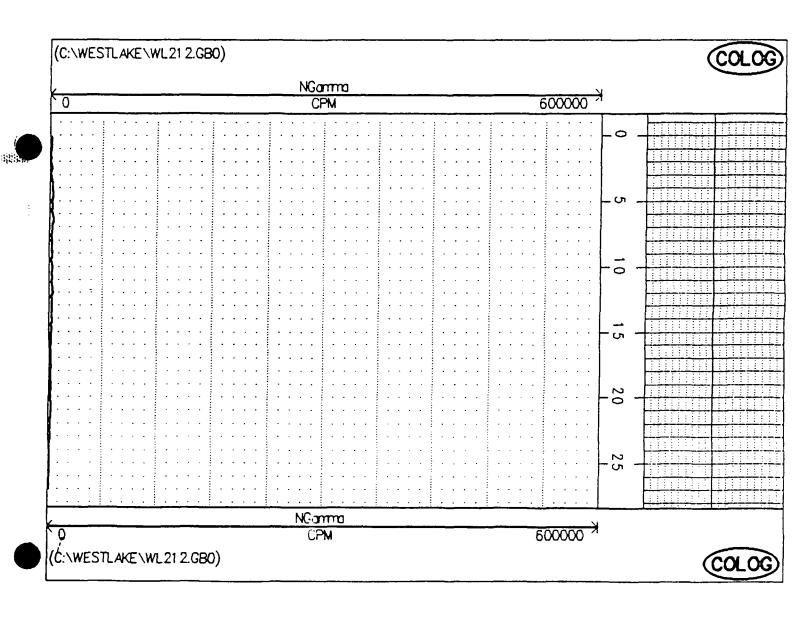


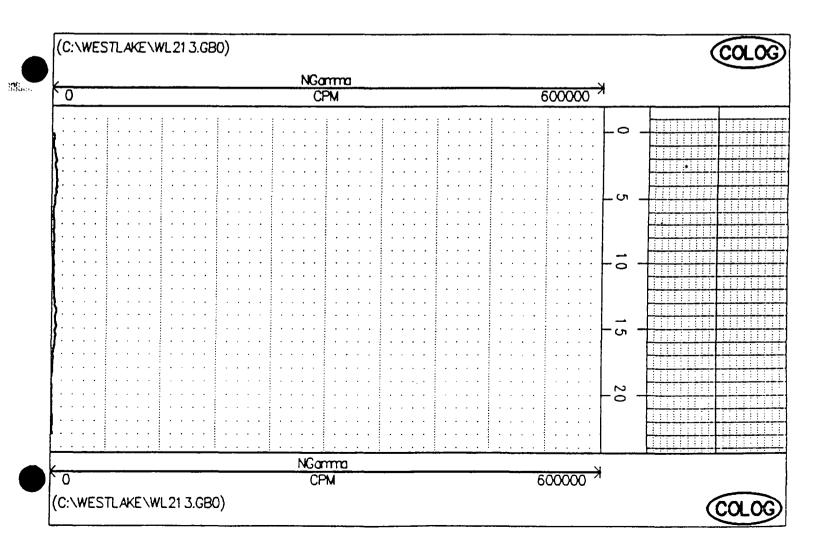


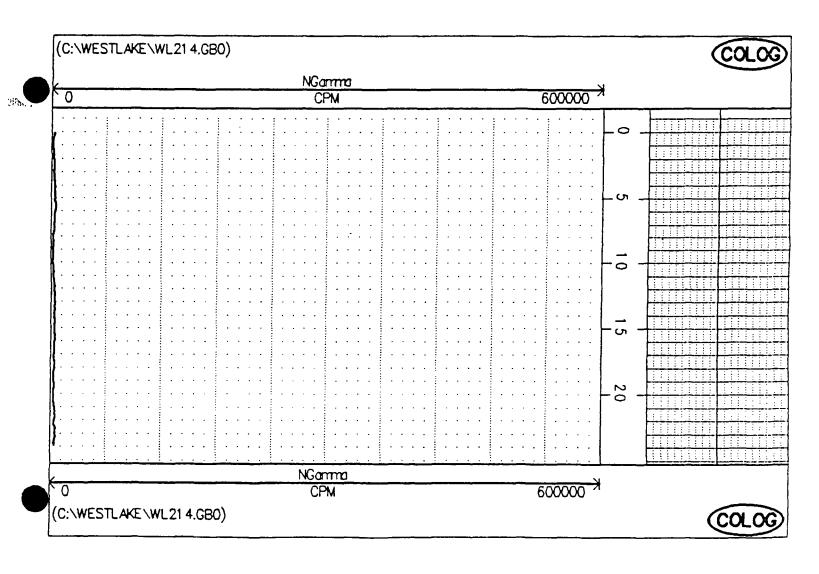


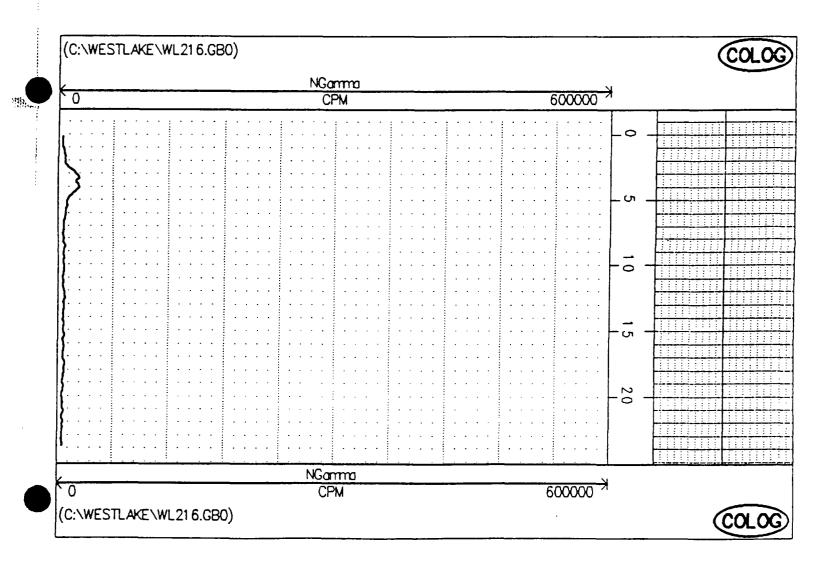


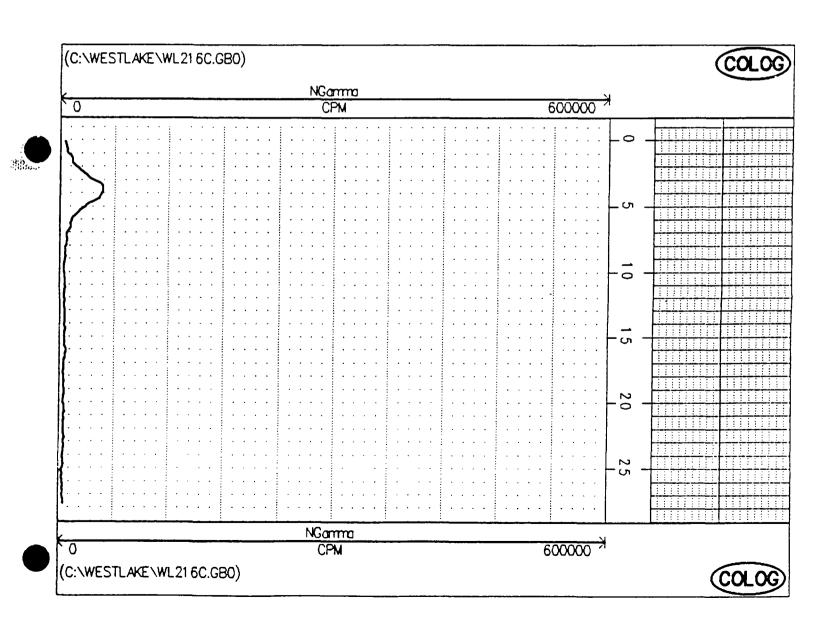


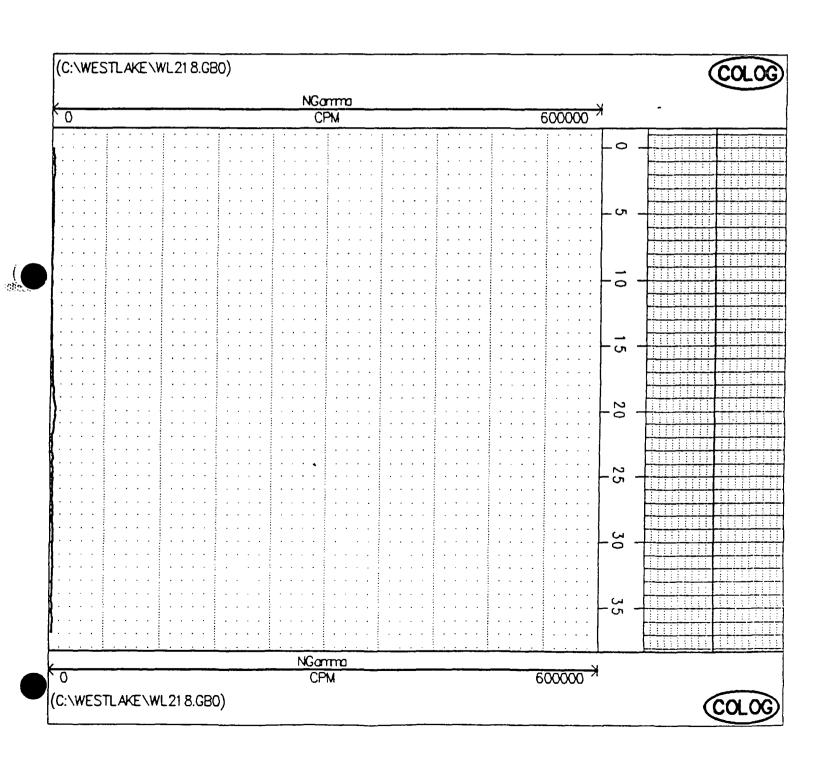


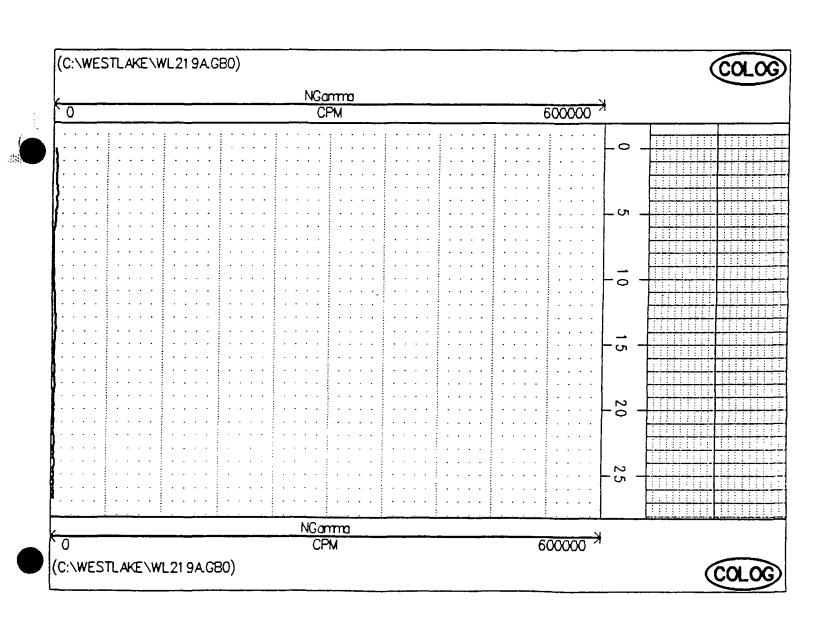


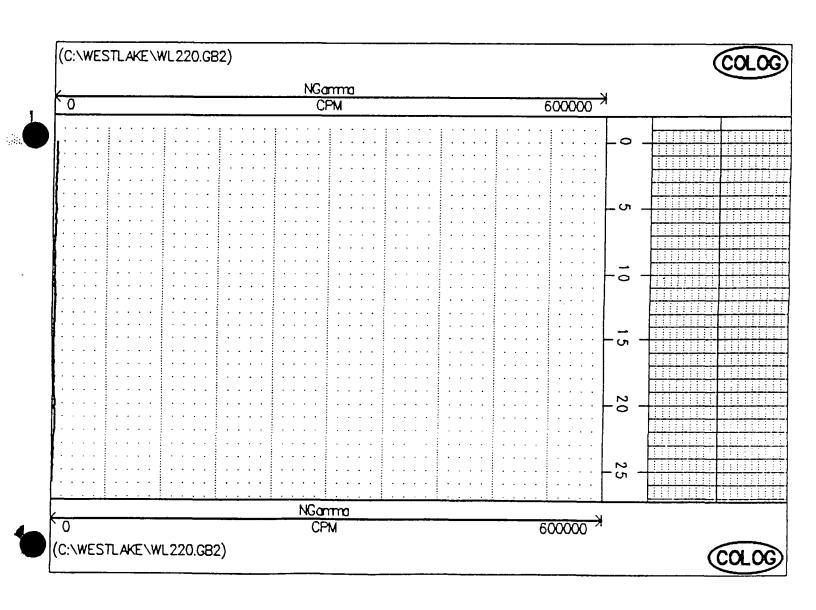


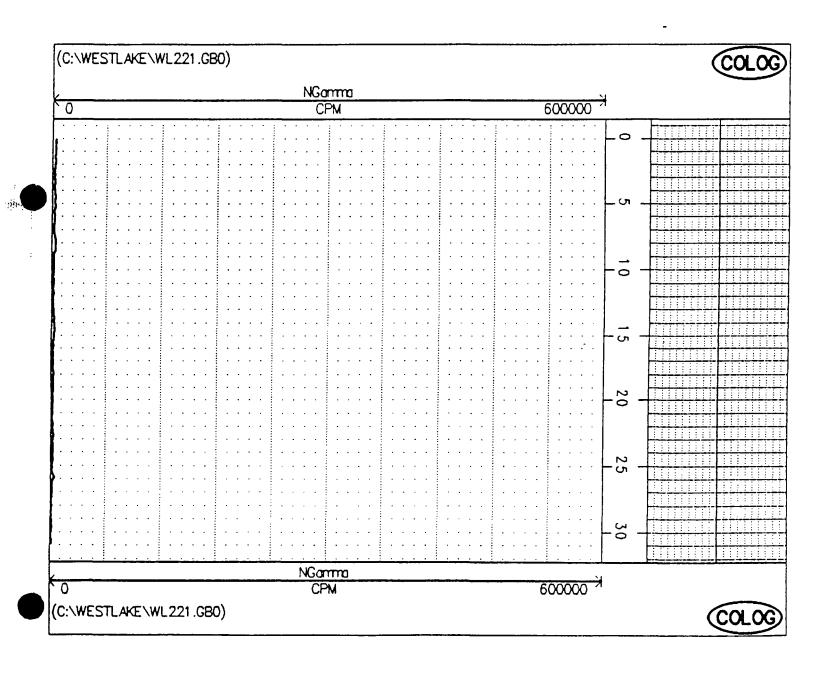


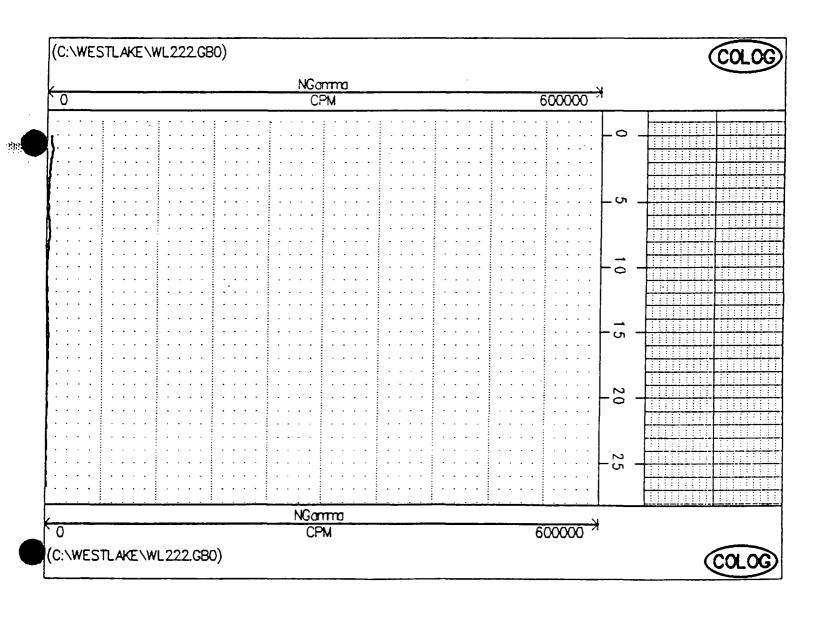


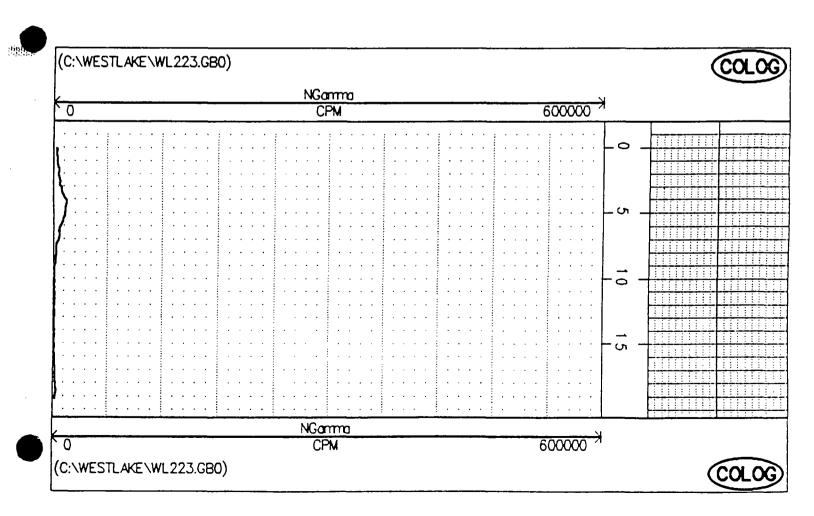


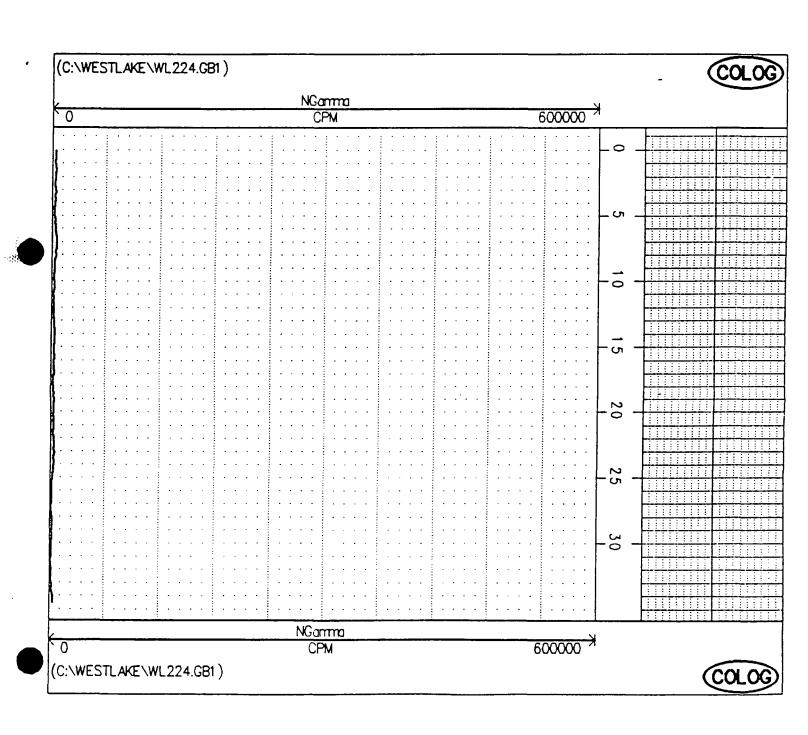


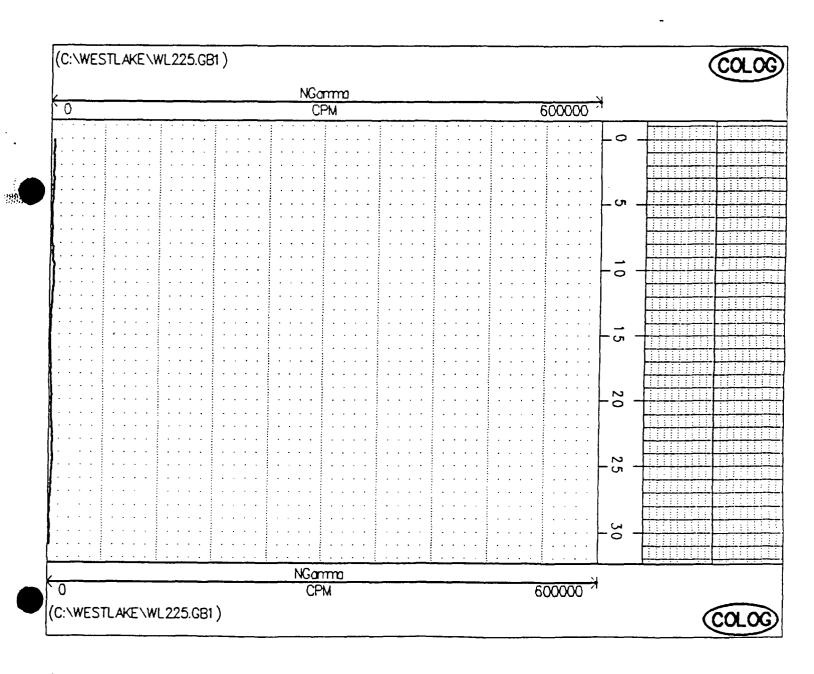


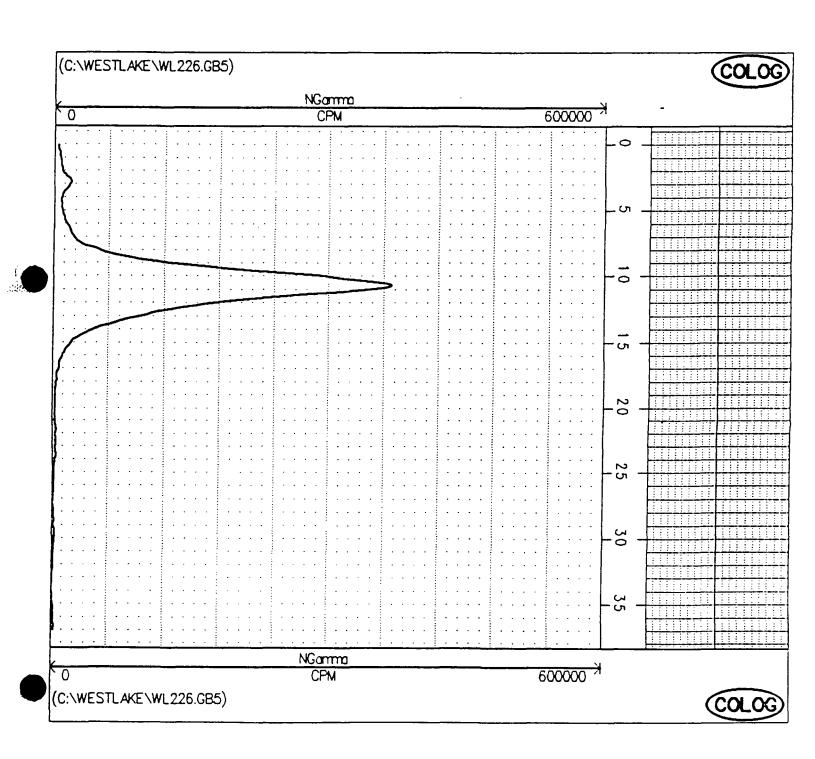


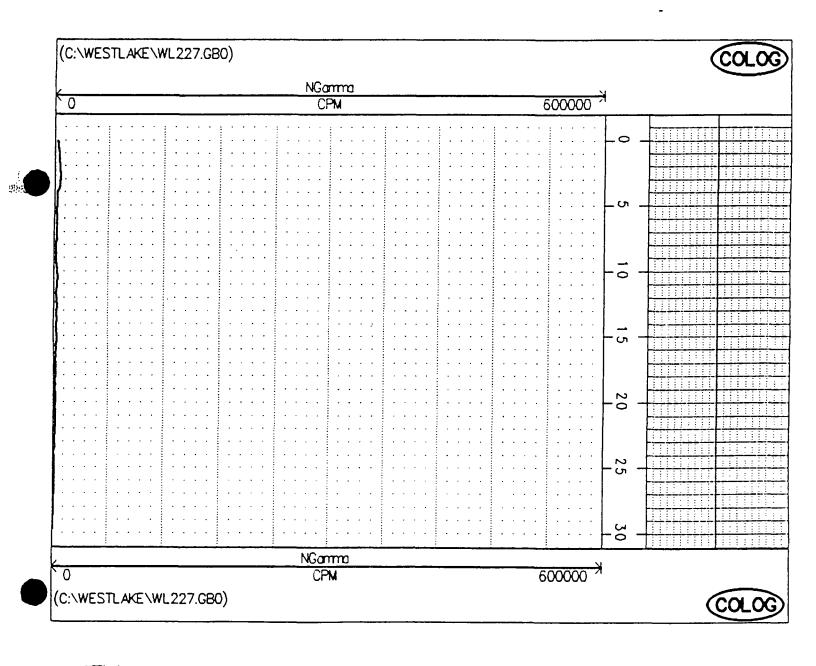


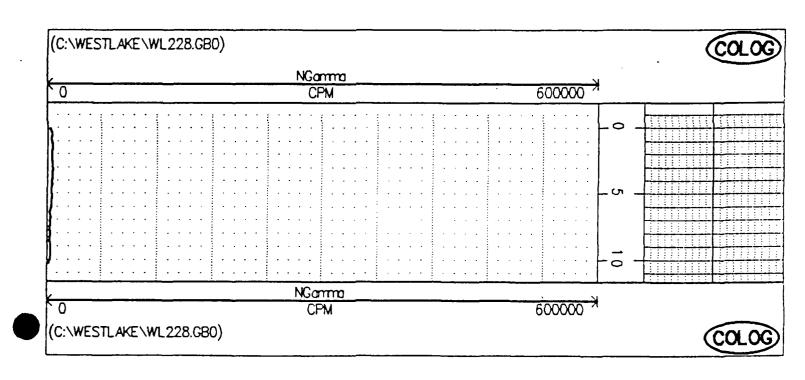


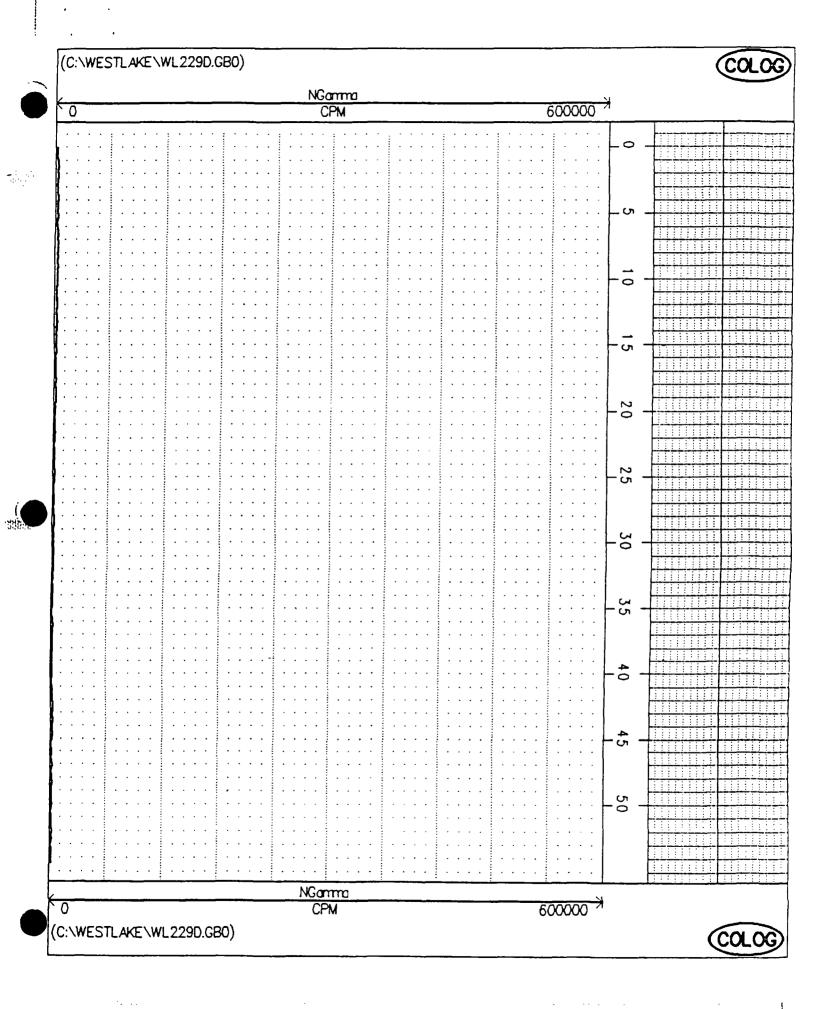


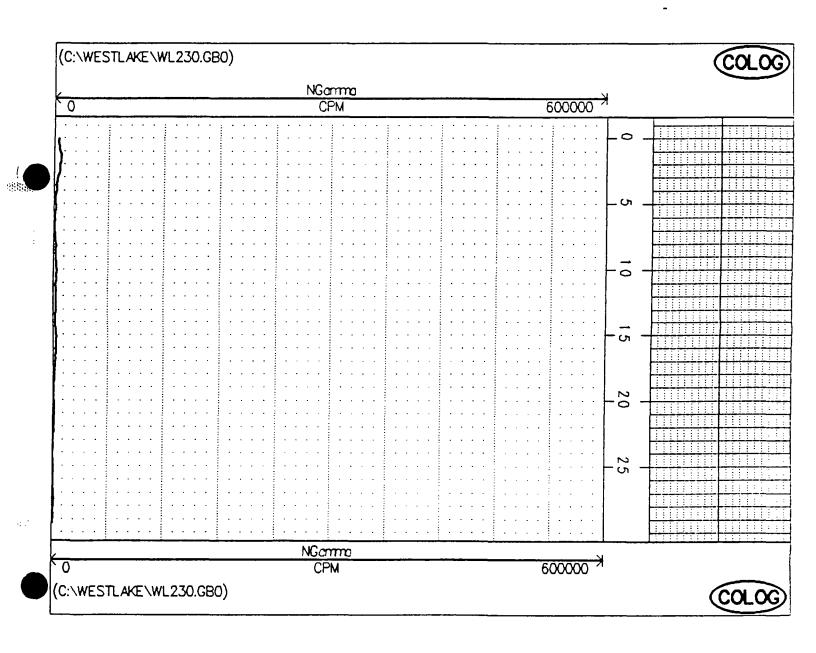


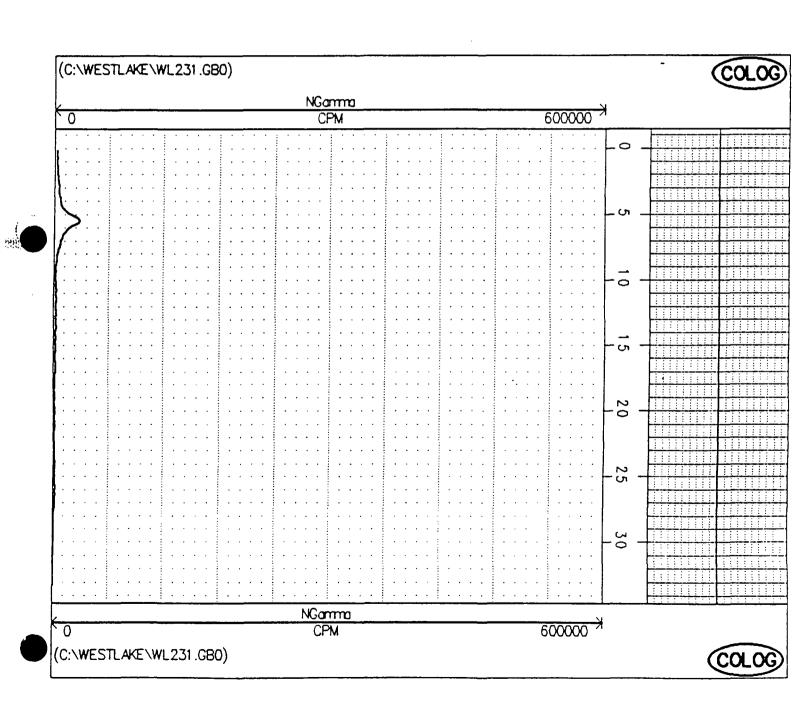


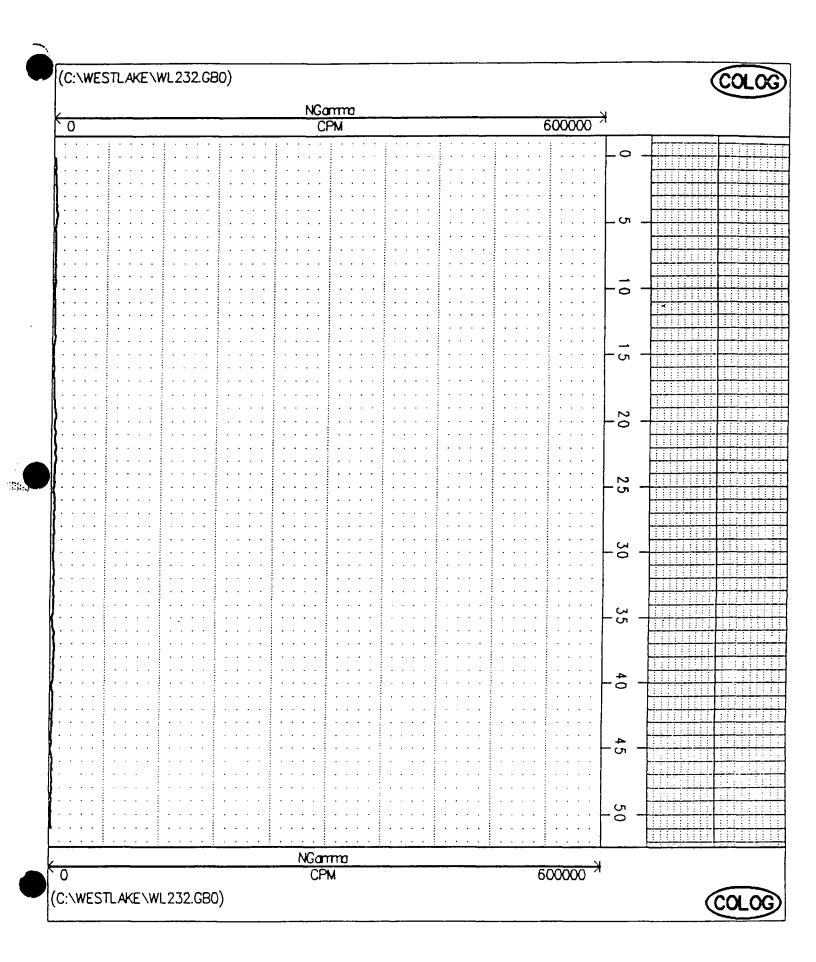


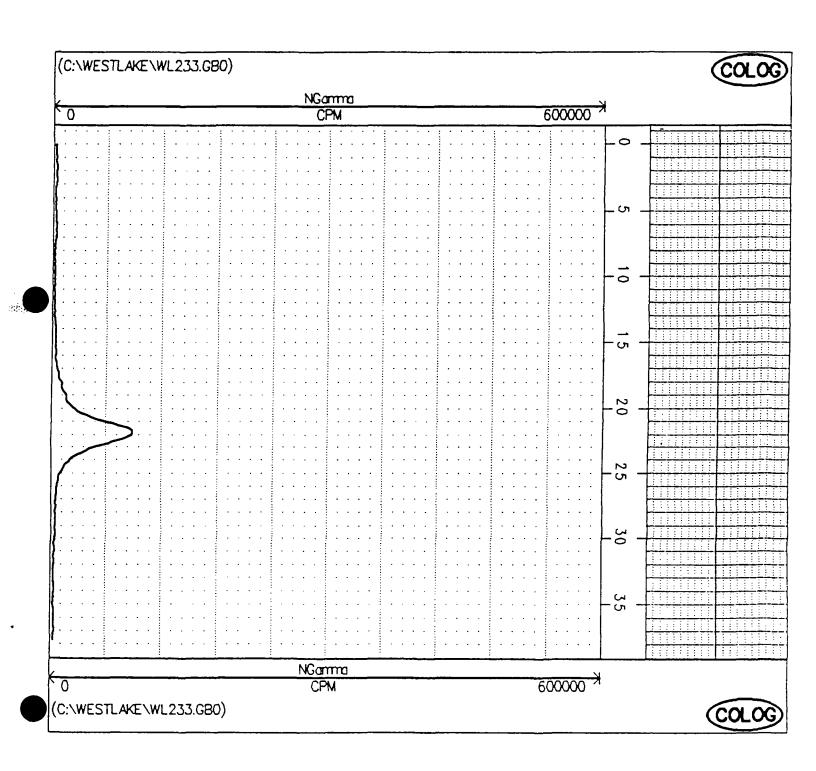


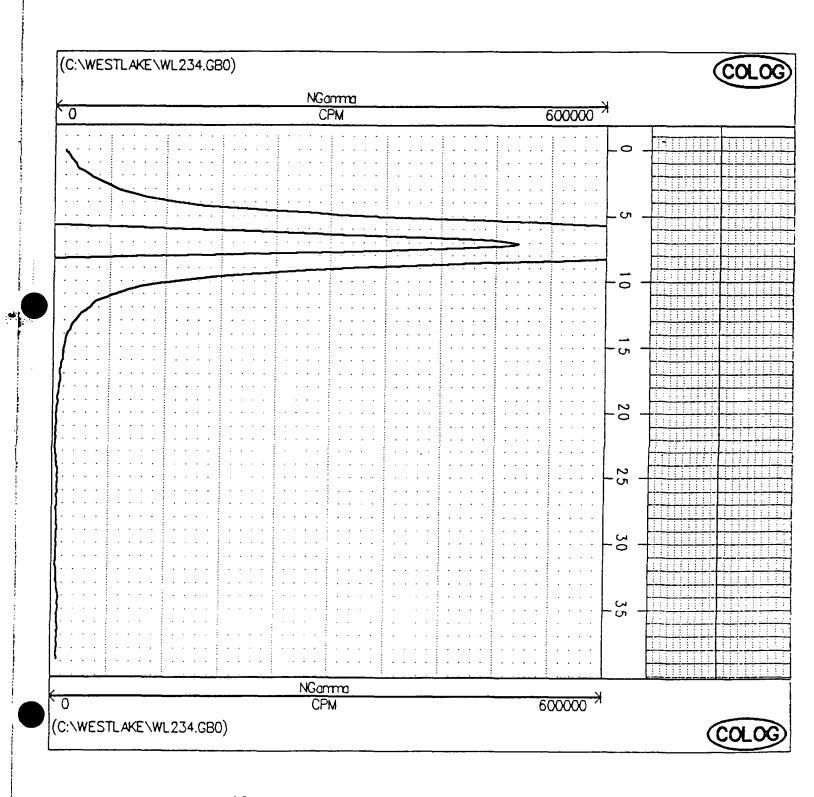


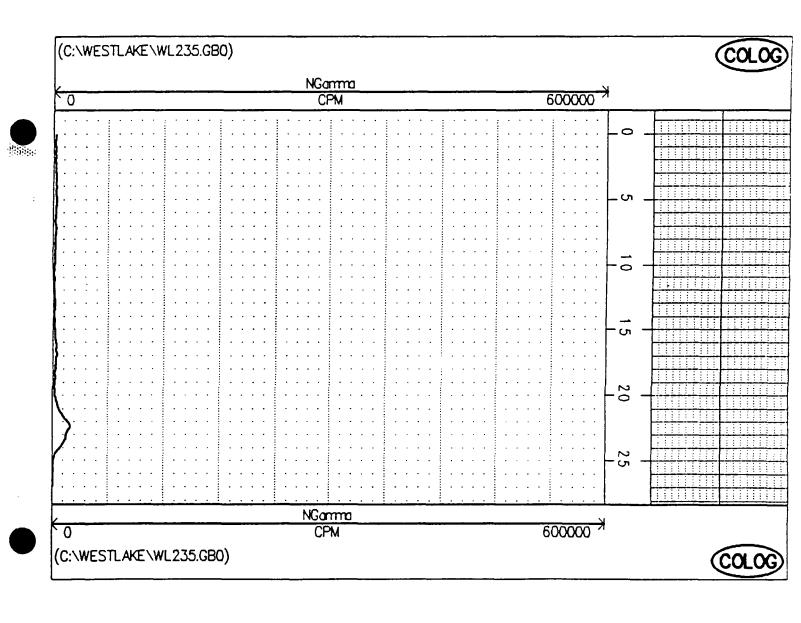


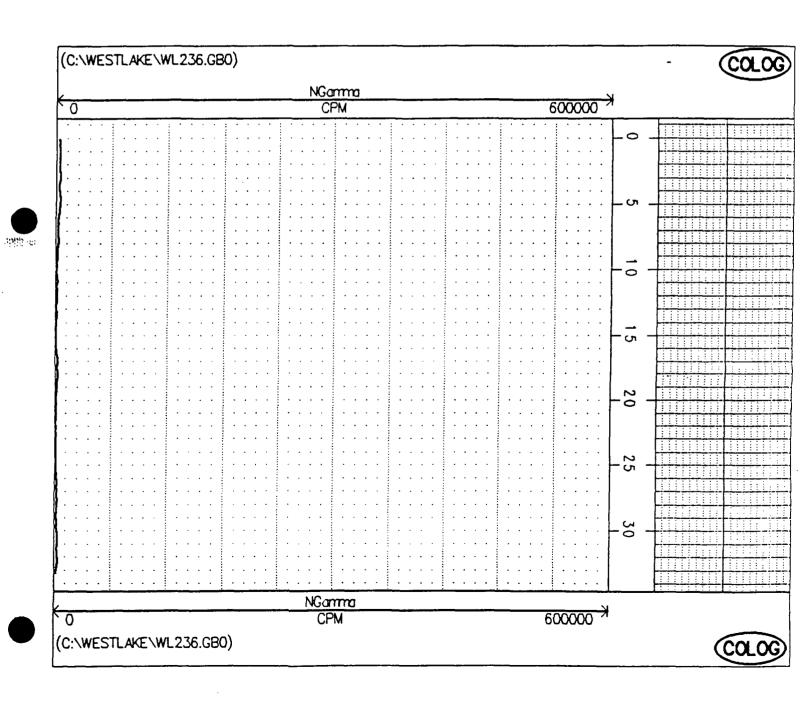


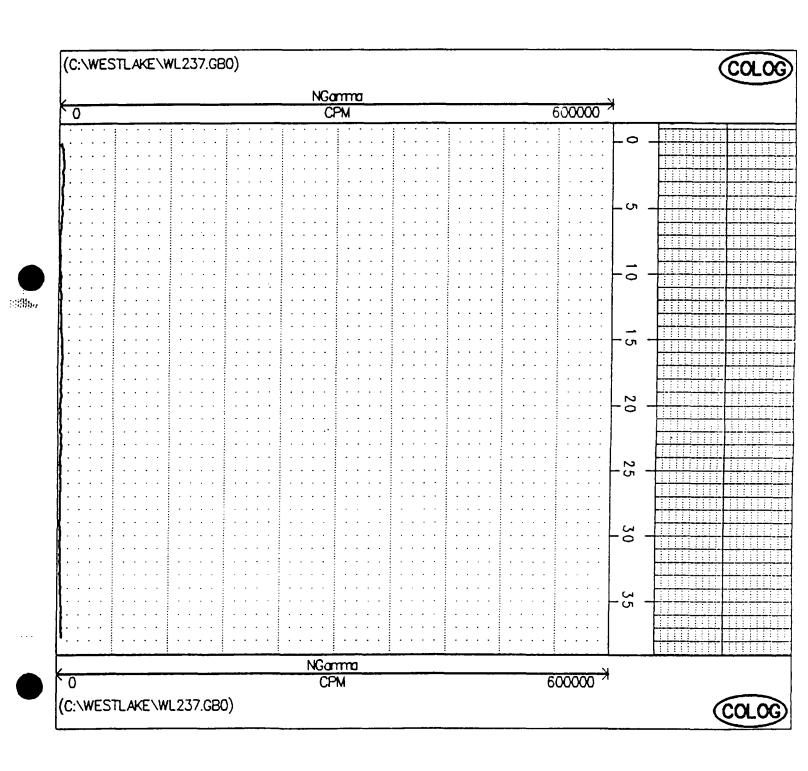


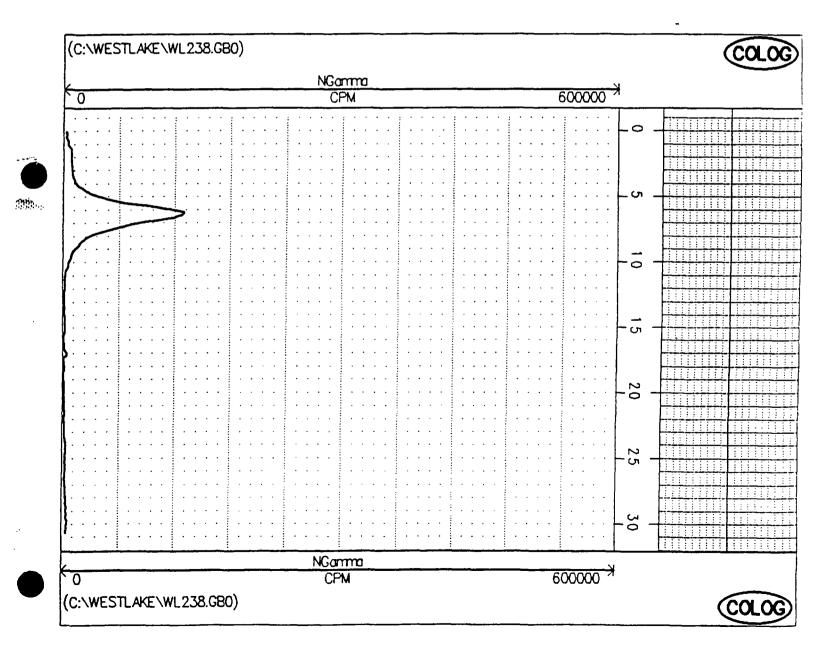


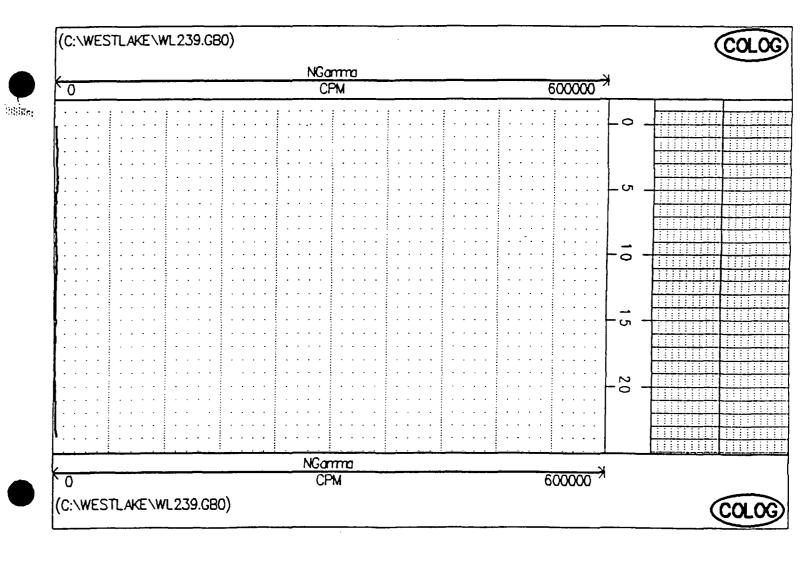


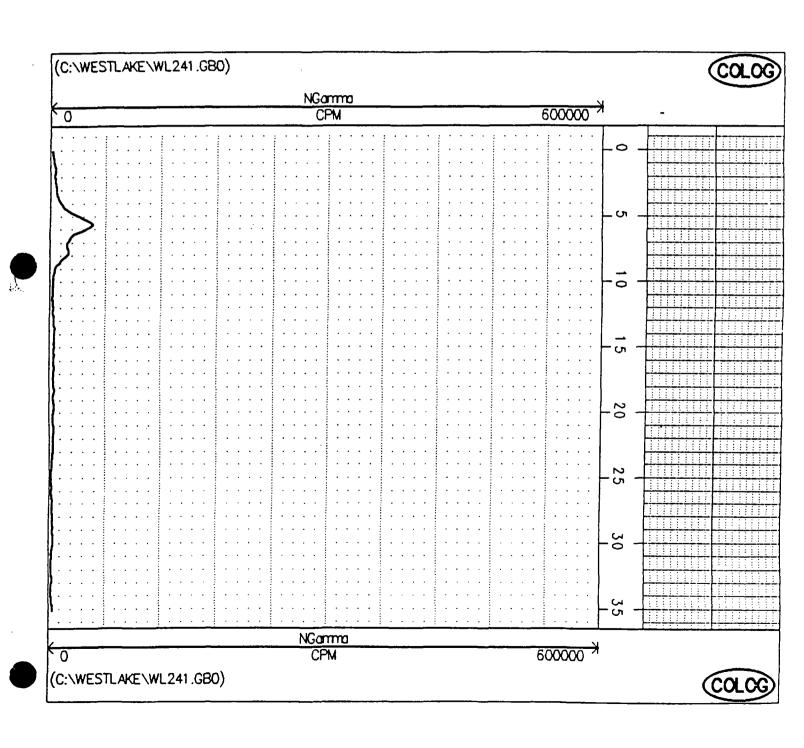






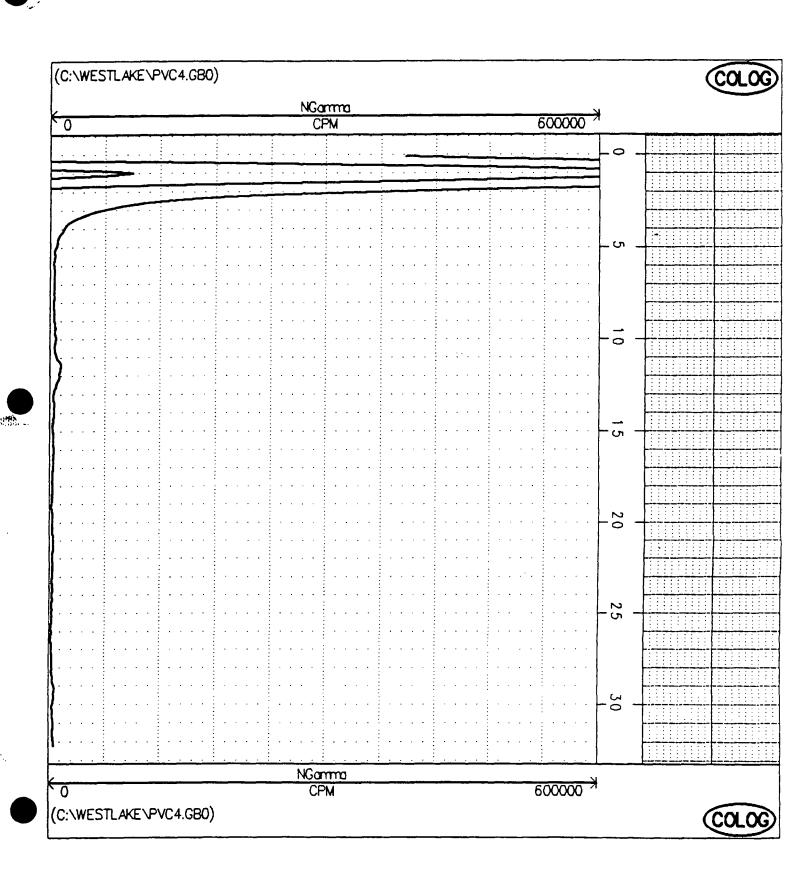


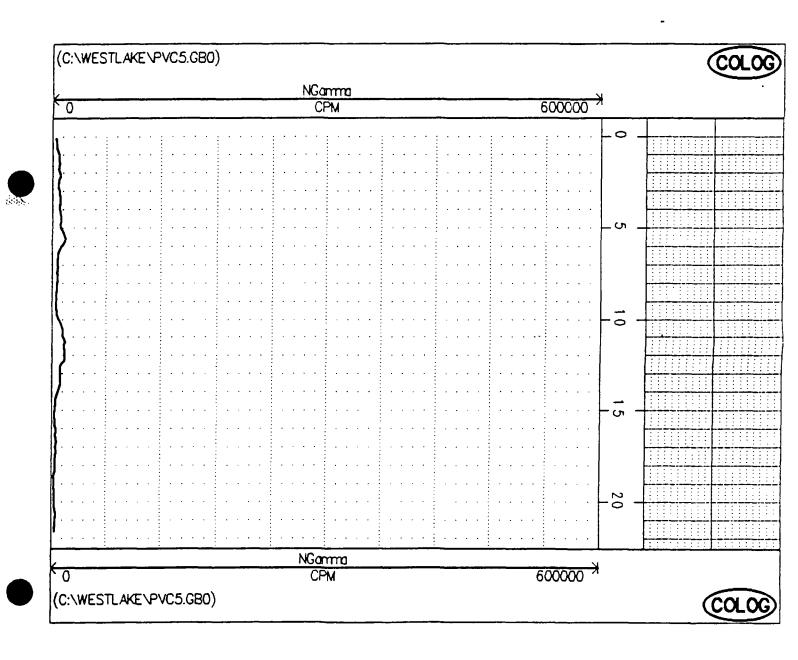


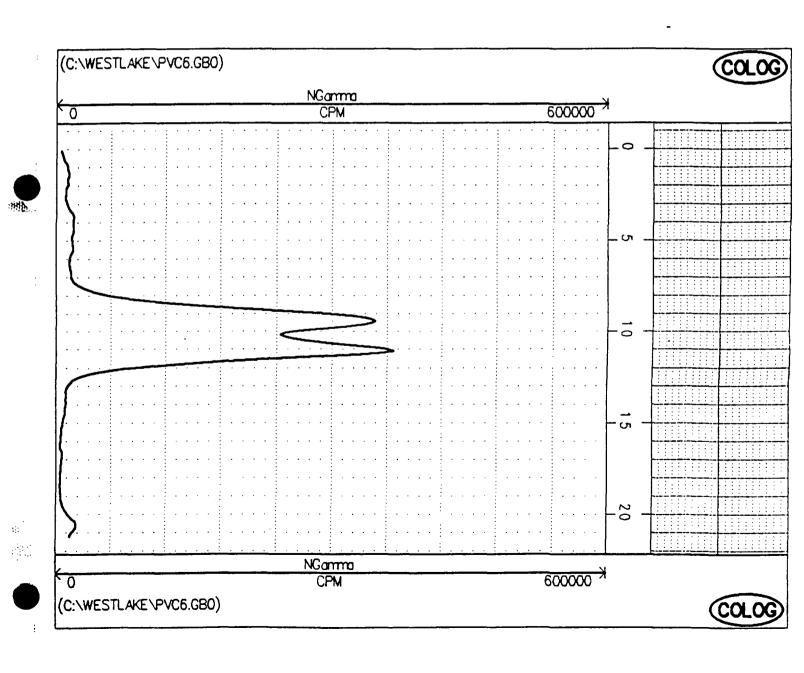


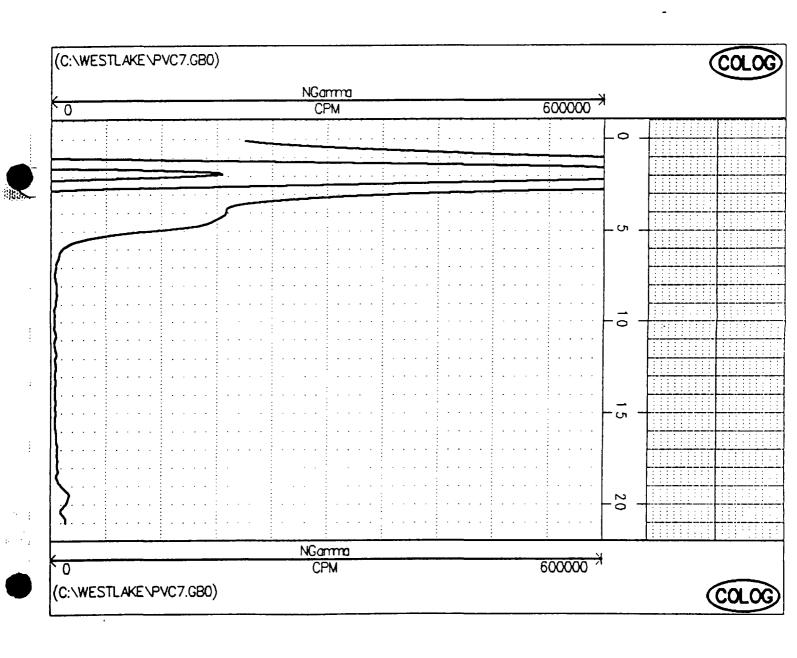
- **-**--

PVC Boring Downhole Gamma Logs

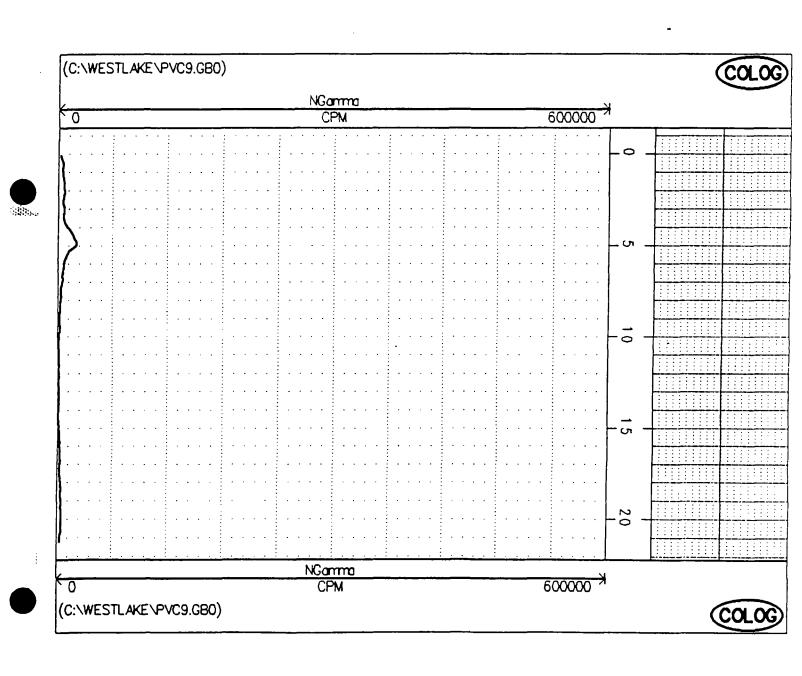


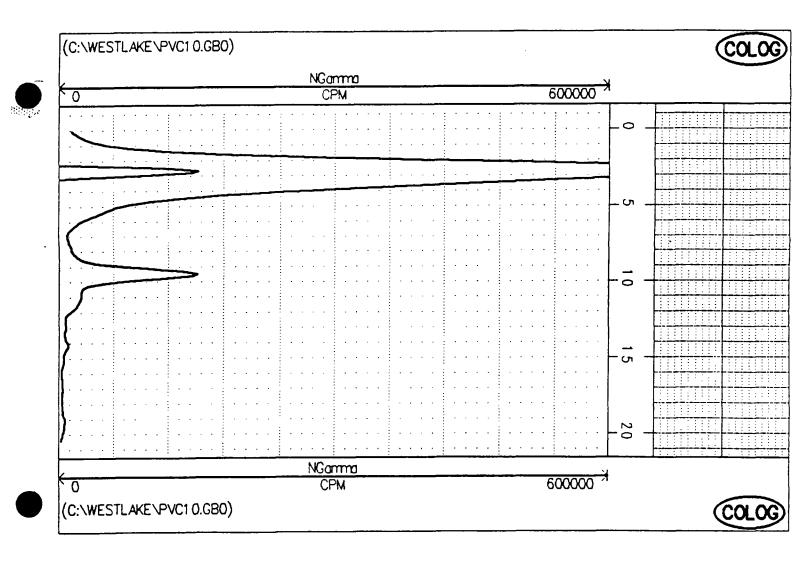


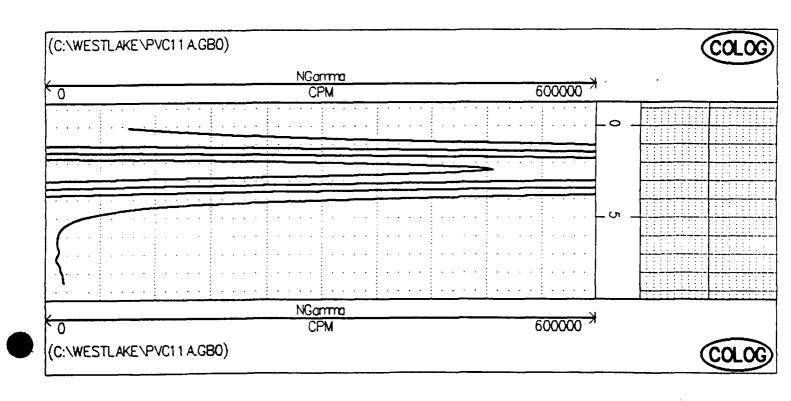


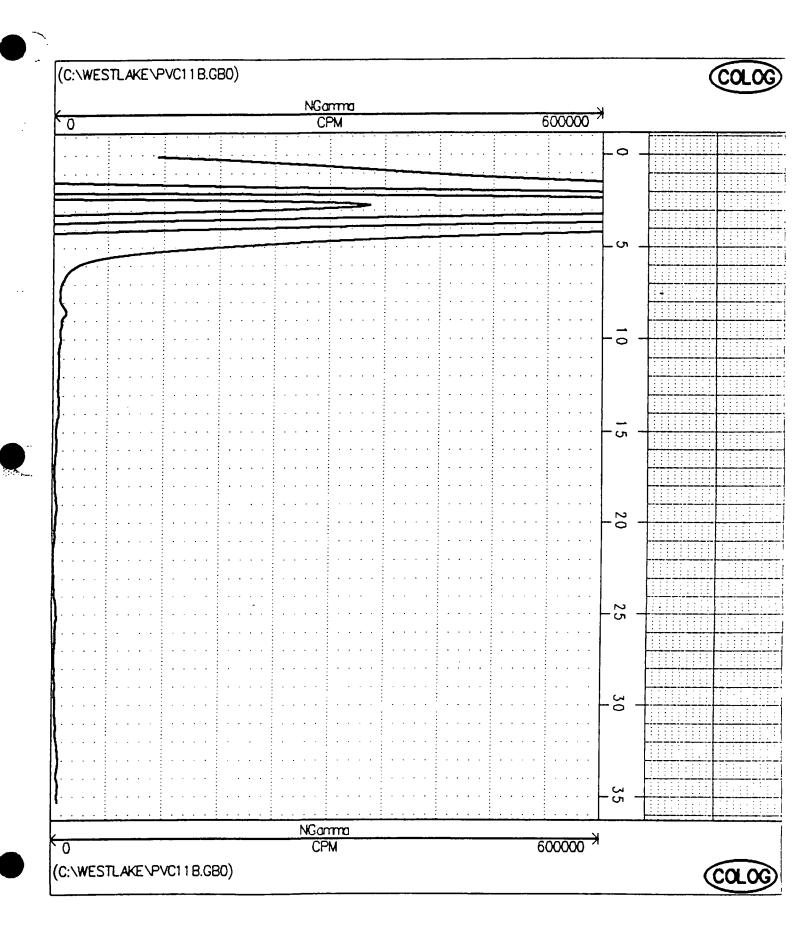


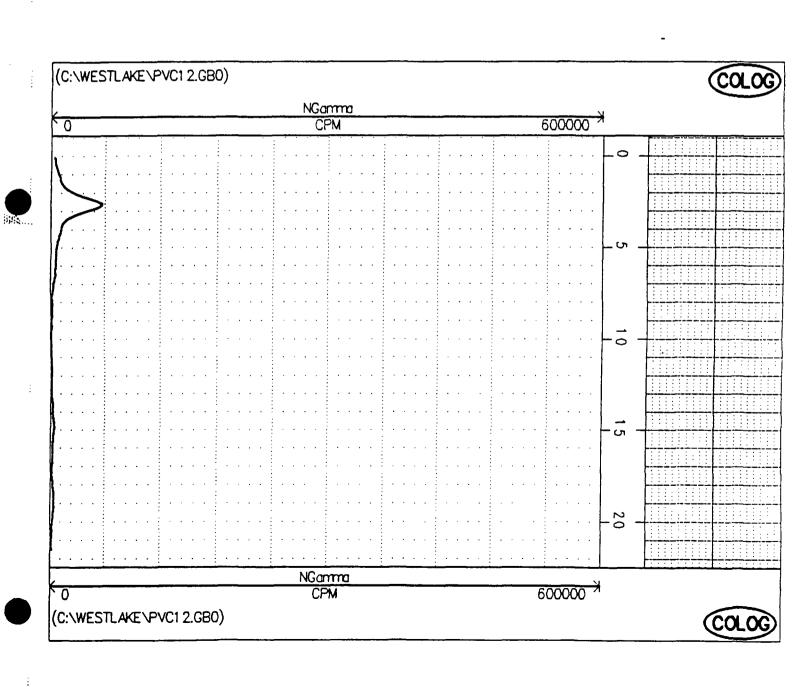
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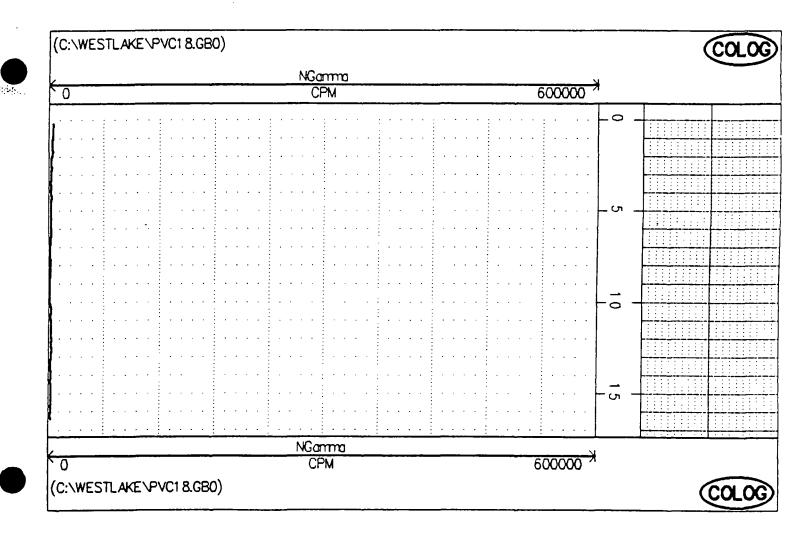


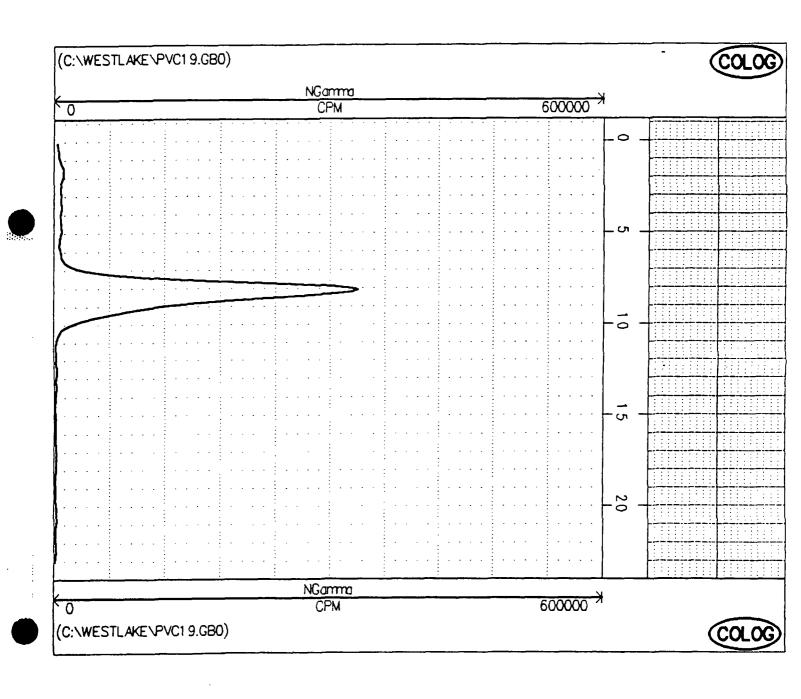


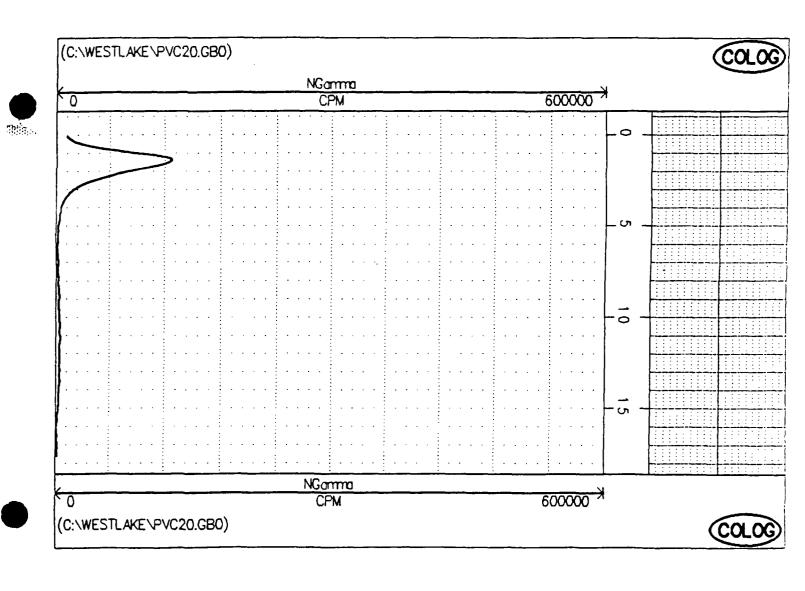


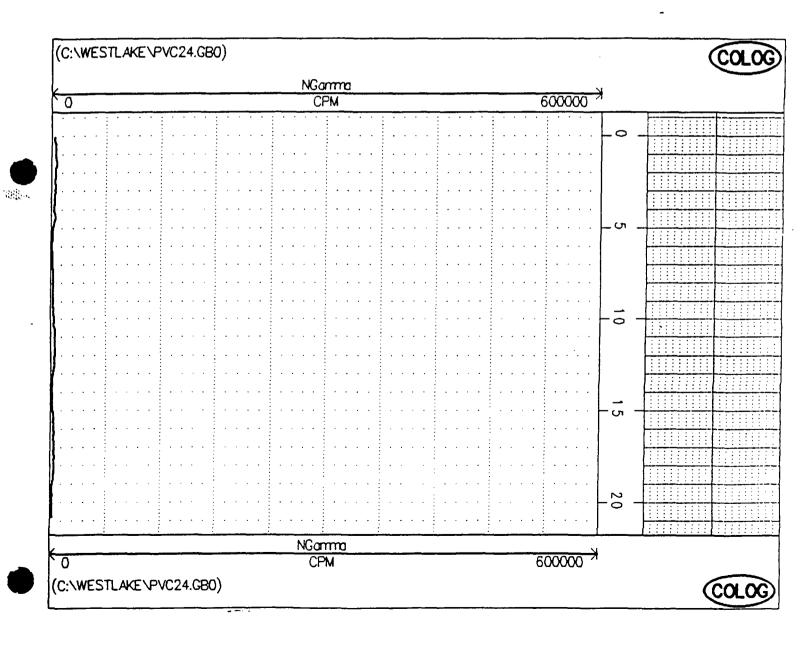


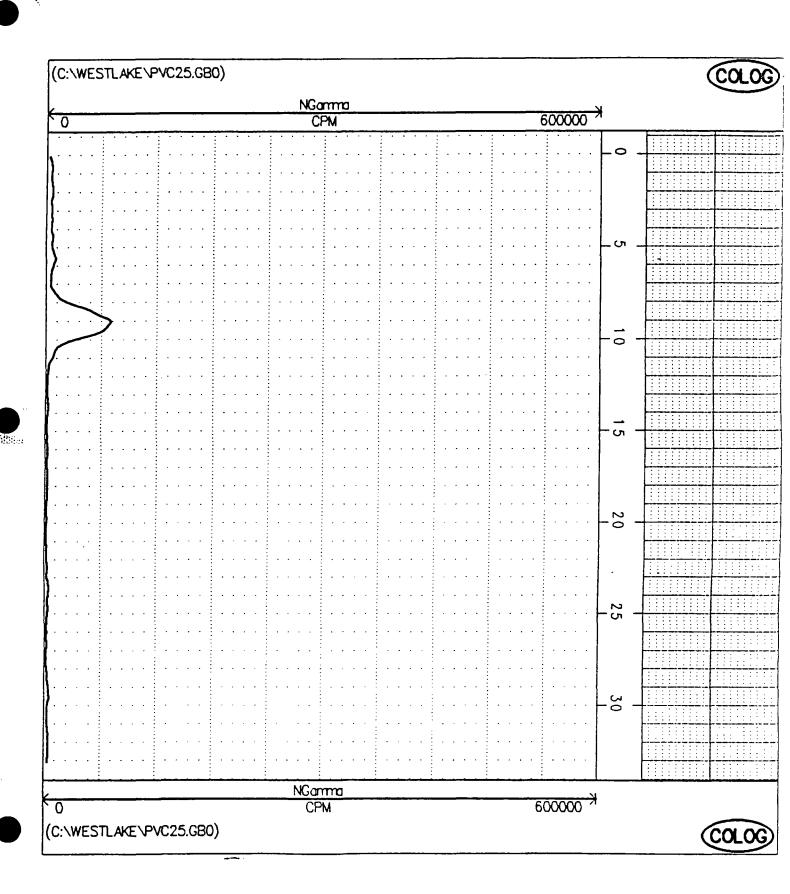
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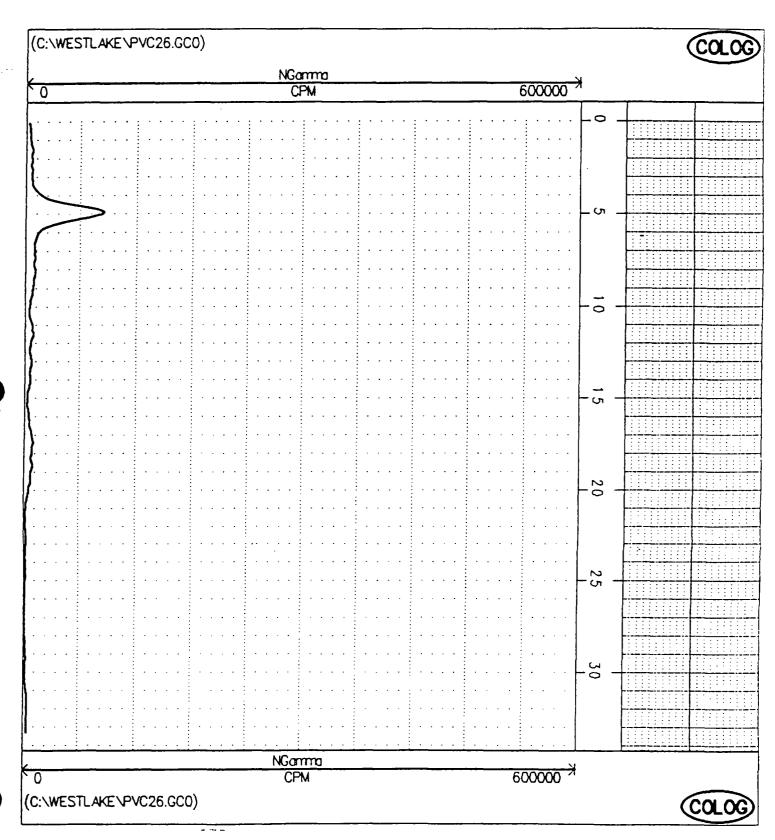


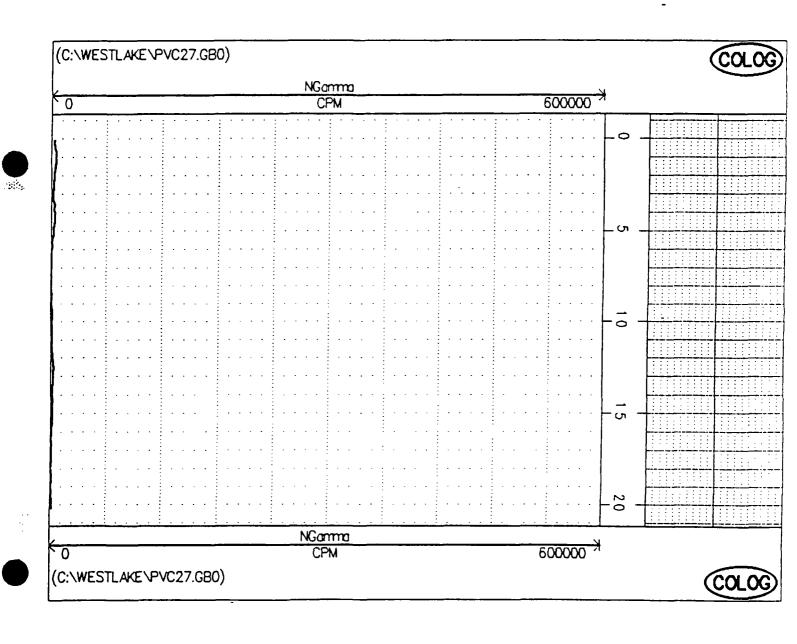


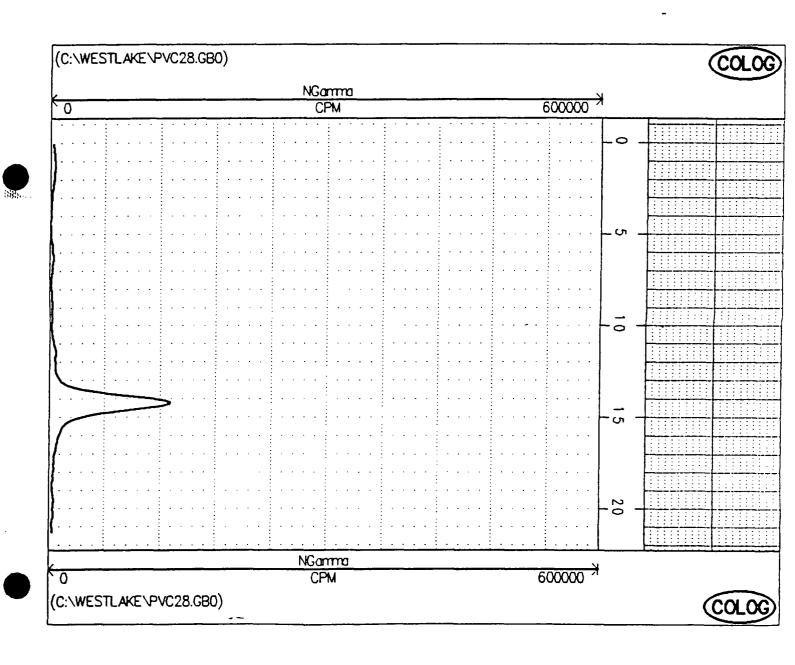


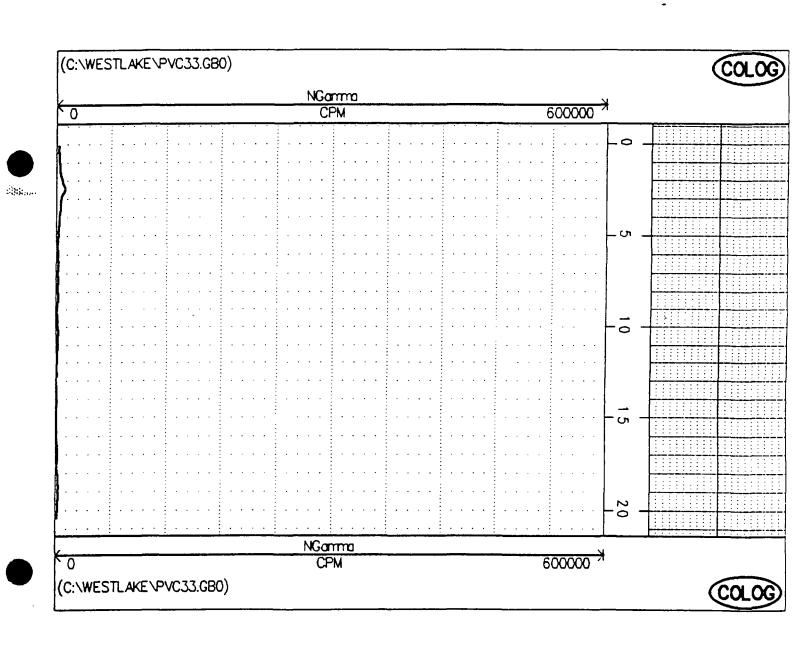


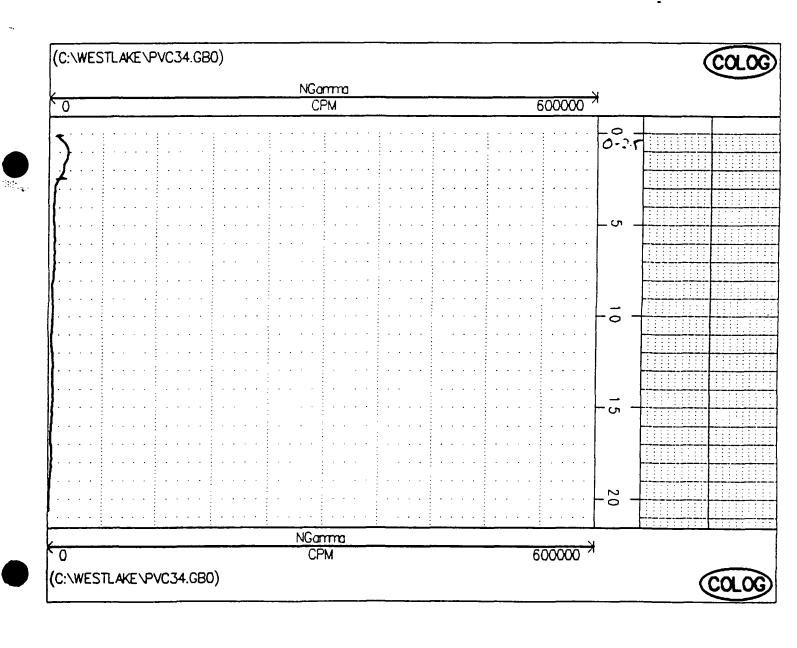


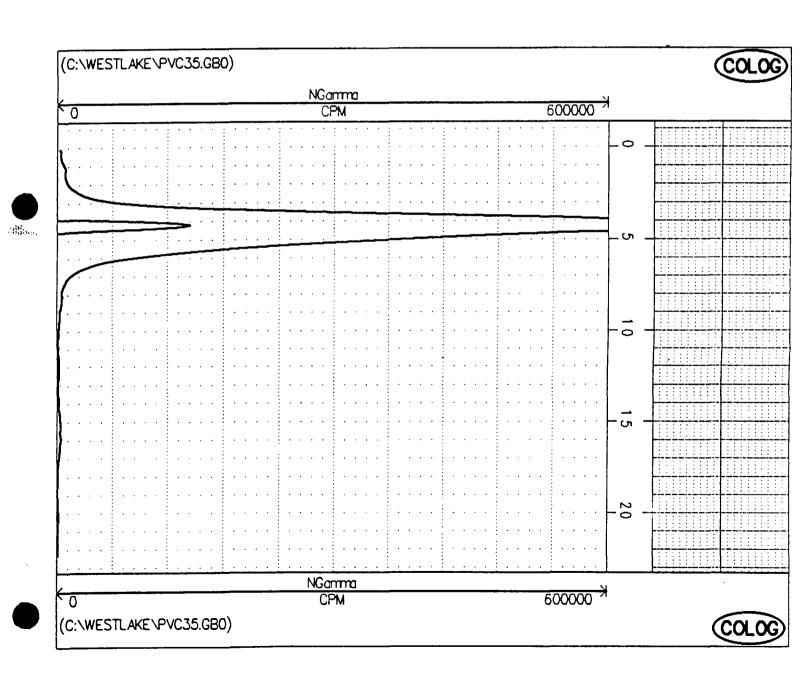








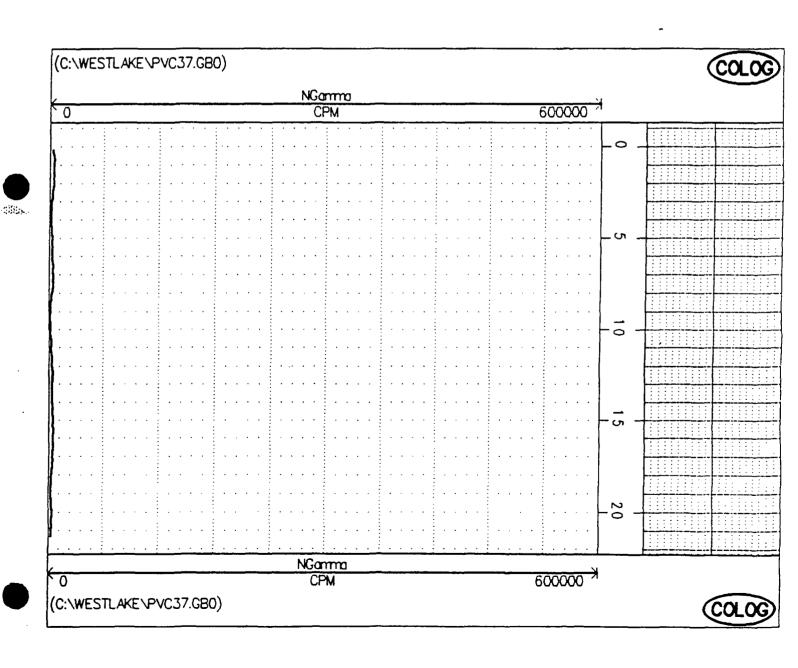


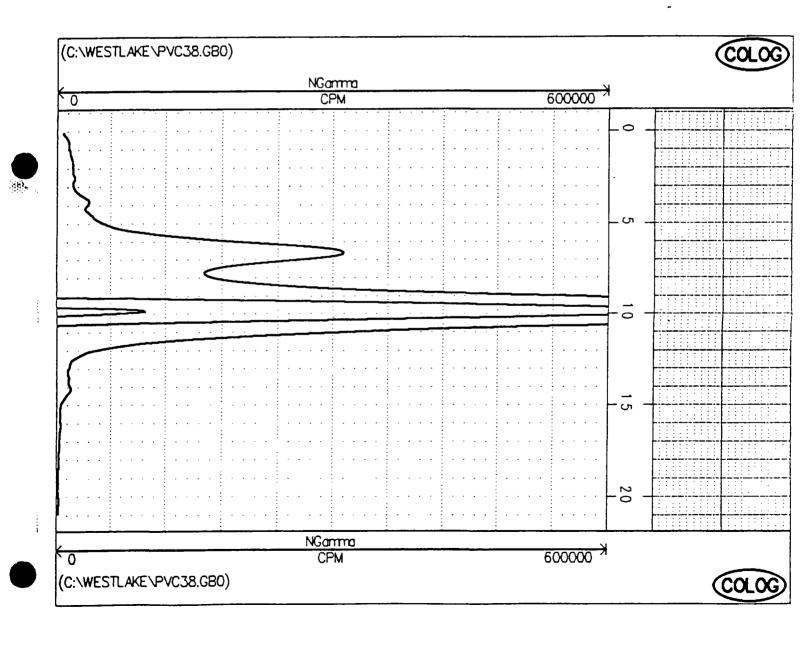


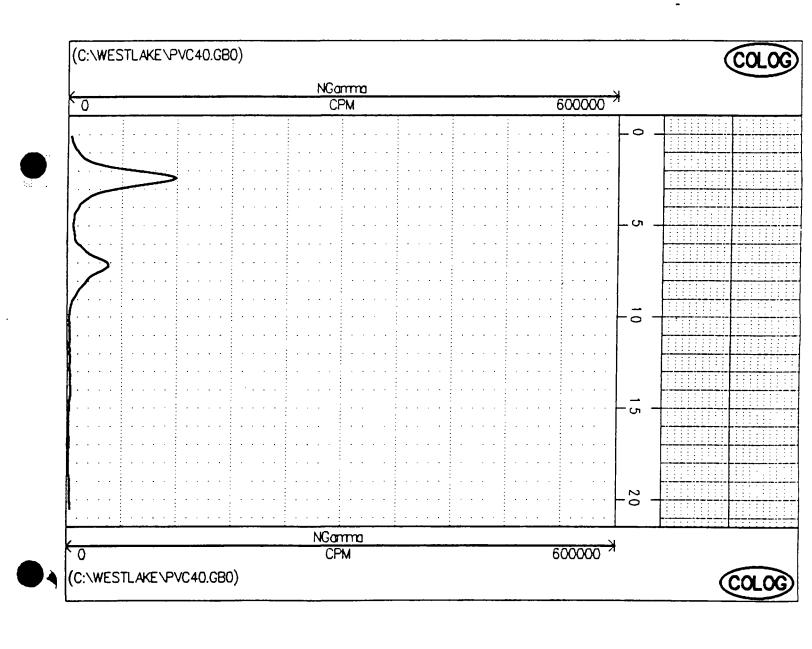
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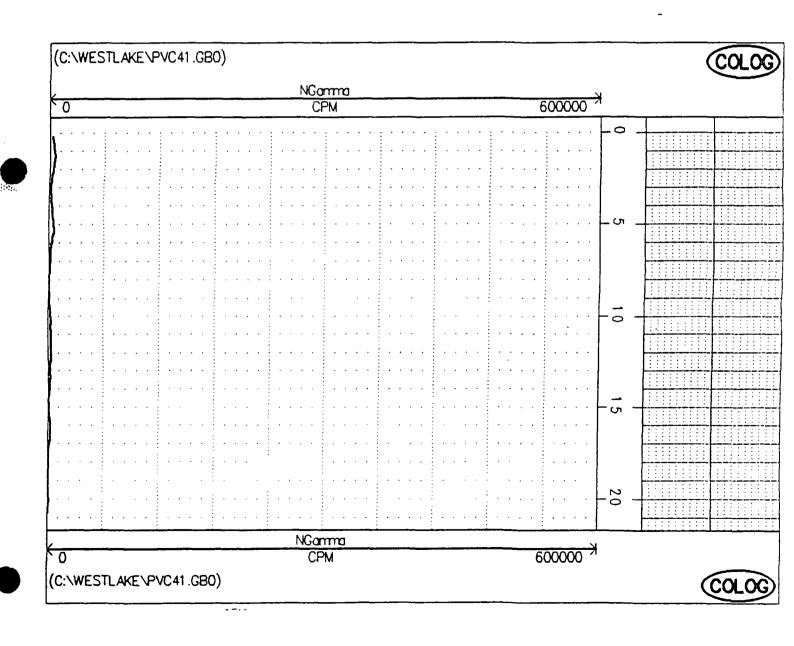
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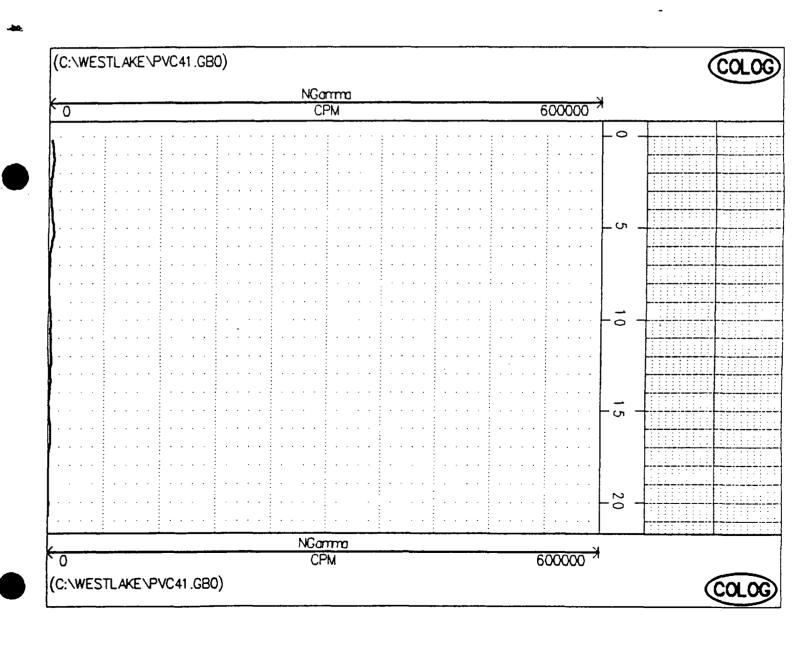
:













Prepared for:

The West Lake Respondent Group

Prepared by:

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Prepared by:

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Senior Associate Geoscientist

Reviewed by:

Bruce E. Ehleringer

Managing Principal Geoscientist

June E. Elle

November 26, 1996

Project No. 070803035

GROUNDWATER CONDITIONS REPORT
WEST LAKE LANDFILL RADIOLOGICAL
AREAS 1 AND 2
BRIDGETON, MISSOURI

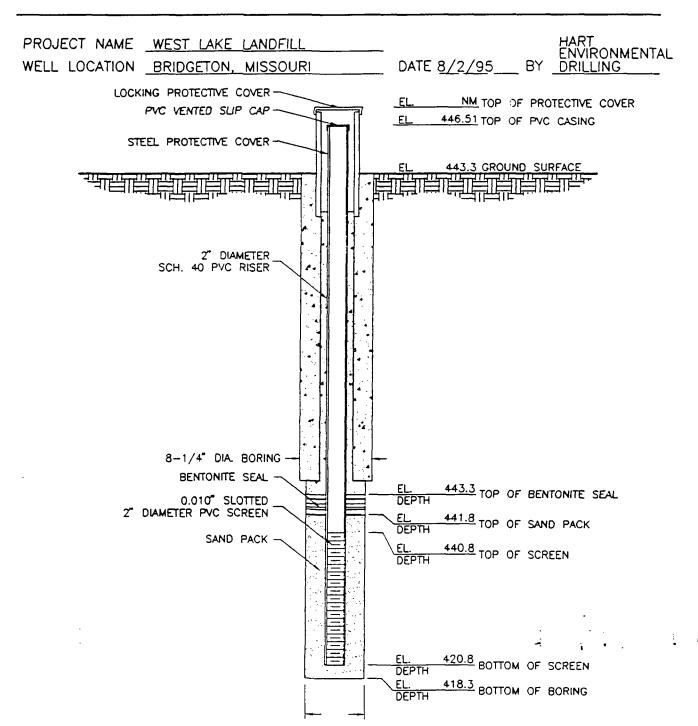
APPENDICES

Appendix A	Groundwater Analytical Results
Appendix B	Groundwater Priority Pollutant Analytical Results
Appendix C	QA/QC Analytical Reports
Appendix D	Boring Logs and Well Construction Details
Appendix E	MSD Disposal Acceptance Letters
Appendix F	Quanterra Laboratory Procedural Issue Memo and Letter
Appendix G	Aquifer Testing Results

Boring Logs and Well Construction Details



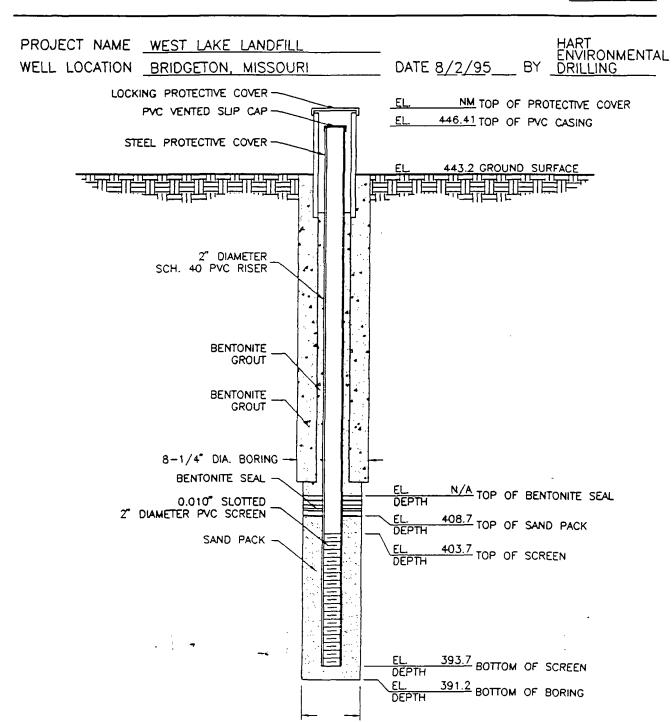
PROJECT NO. <u>070803035</u> WELL NO. <u>S-1</u>



- 1. REFER TO SOIL BORING WL-204 FOR SOIL DESCRIPTION.
- 2. DETAIL NOT TO SCALE.
- 3. NM = NOT MEASURED



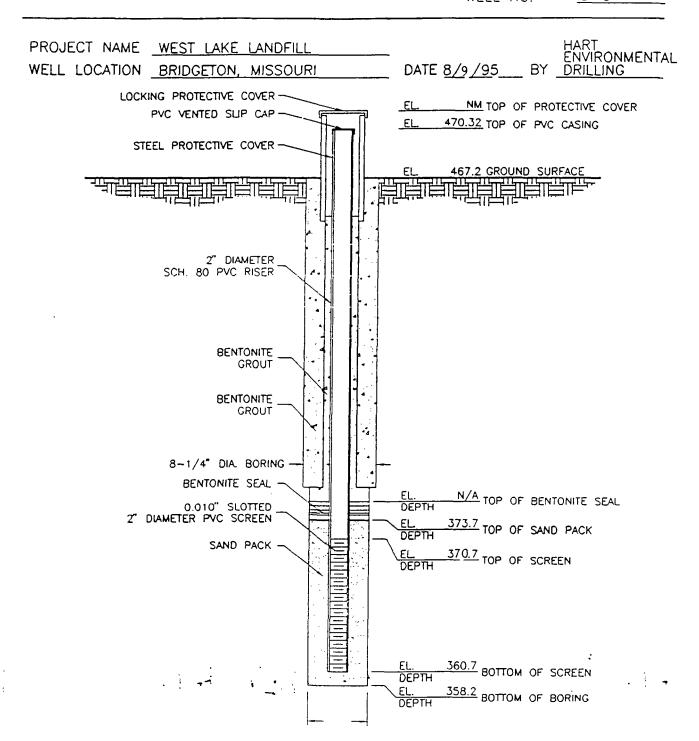
PROJECT NO. <u>070803035</u> WELL NO. I-2



- 1. REFER TO SOIL BORING WL-205 FOR SOIL DESCRIPTION.
- 2. DETAIL NOT TO SCALE.
- 3. NM = NOT MEASURED
- 4. N/A NOT APPLICABLE, BENTONITE GROUT WAS USED TO SEAL WELL UP TO SURFACE.



MONITORING
WELL DETAILS
PROJECT NO. 070803035
WELL NO. D-3

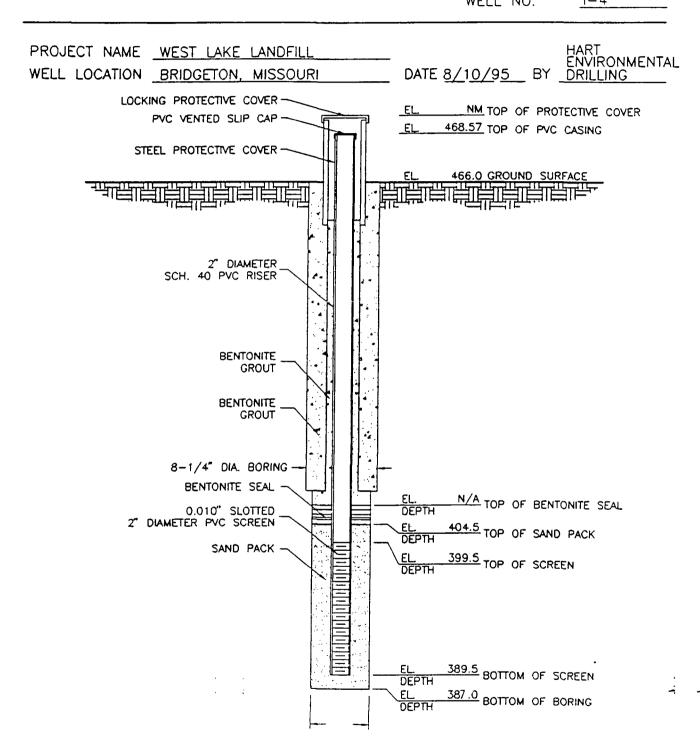


HOTES:

- 1. REFER TO SOIL BORING WL-105A FOR SOIL DESCRIPTION.
- 2. DETAIL NOT TO SCALE.
- 3. NM = NOT MEASURED
- 4. N/A NOT APPLICABLE, BENTONITE GROUT/CHIPS USED TO SEAL WELL UP TO SURFACE.



PROJECT NO. 070803035 WELL NO.



- 1. REFER TO SOIL BORING WL-105B FOR SOIL DESCRIPTION.
- 2. DETAIL NOT TO SCALE.
- 3. NM = NOT MEASURED
- 4. N/A NOT APPLICABLE, BENTONITE GROUT/CHIPS USED TO SEAL WELL UP TO SURFACE.



PROJECT NO. <u>070803035</u> WELL NO. S-5

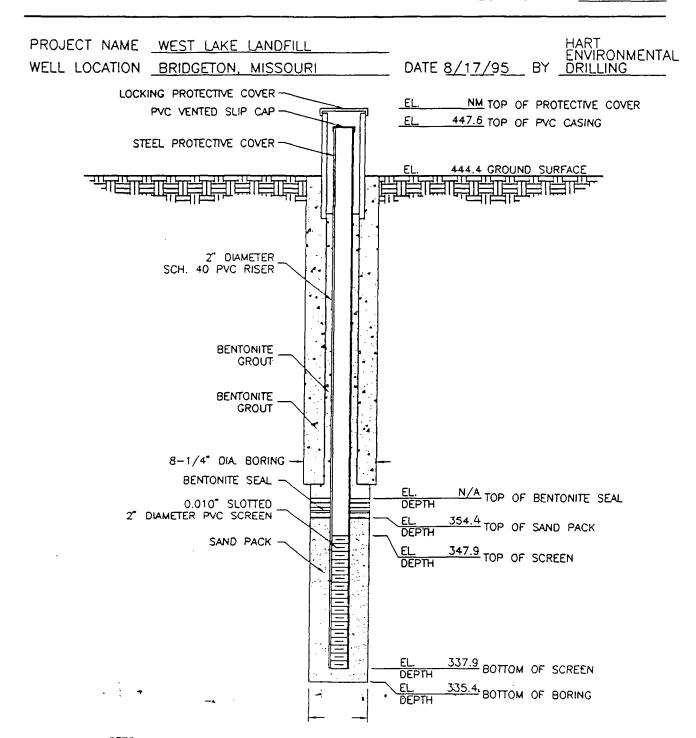
DATE 8/15/95 BY DRILLING PROJECT NAME WEST LAKE LANDFILL WELL LOCATION BRIDGETON, MISSOURI LOCKING PROTECTIVE COVER-EL NM TOP OF PROTECTIVE COVER PVC VENTED SLIP CAP 468.65 TOP OF PVC CASING STEEL PROTECTIVE COVER-.7 GROUND SURFACE 2" DIAMETER SCH. 40 PVC RISER BENTONITE **GROUT** BENTONITE GROUT 8-1/4" DIA. BORING -BENTONITE SEAL -438.7 TOP OF BENTONITE SEAL 0.010" SLOTTED 2" DIAMETER PVC SCREEN 436.7 TOP OF SAND PACK DEPTH SAND PACK -435.7 TOP OF SCREEN DEPTH 425.7 BOTTOM OF SCREEN 416.4 BOTTOM OF BORING DEPTH

- 1. REFER TO SOIL BORING WL-105C FOR SOIL DESCRIPTION.
- 2. DETAIL NOT TO SCALE.
- 3. NM = NOT MEASURED



WELL NO.

PROJECT NO. 070803035 D - 6

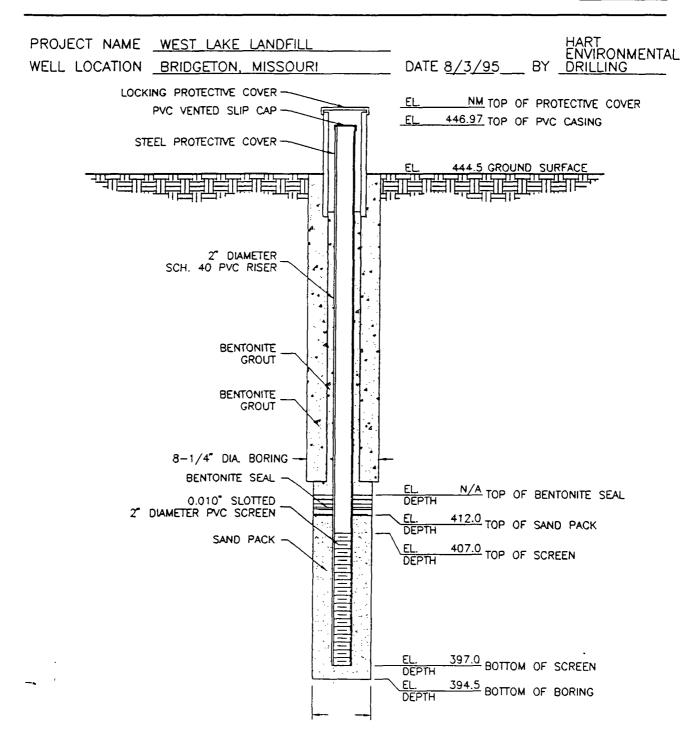


- 1. REFER TO SOIL BORING WL-206 SOIL DESCRIPTION.
- 2. DETAIL NOT TO SCALE.
- 3. NM = NOT MEASURED
- 4. N/A NOT APPLICABLE: BENTONITE GROUT USED TO SEAL WELL UP TO SURFACE



1

PROJECT NO. <u>070803035</u> WELL NO. <u>1-7</u>

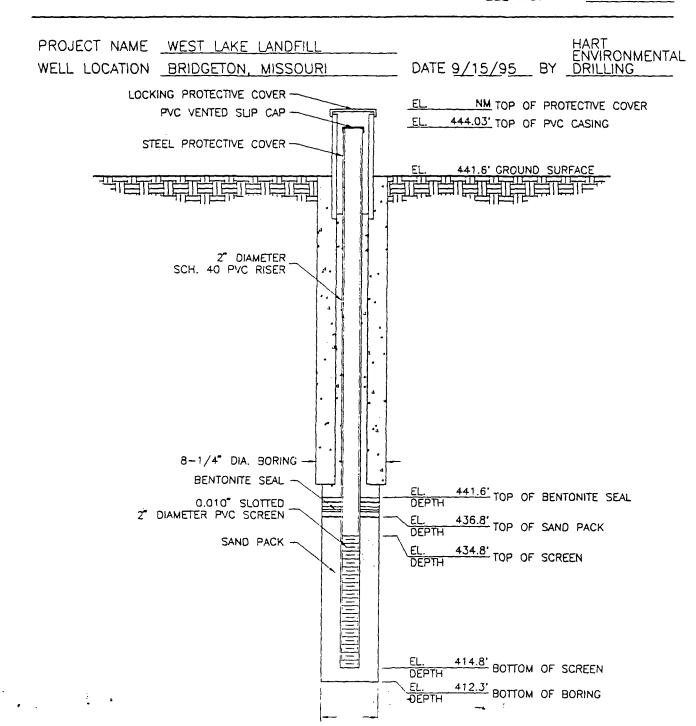


- 1. REFER TO SOIL BORING WL-207 SOIL DESCRIPTION.
- 2. DETAIL NOT TO SCALE.
- 3. NM = NOT MEASURED
- 4. N/A NOT APPLICABLE; BENTONITE GROUT USED TO SEAL WELL UP TO SURFACE



PROJECT NO. 070803035 WELL NO.

S-8

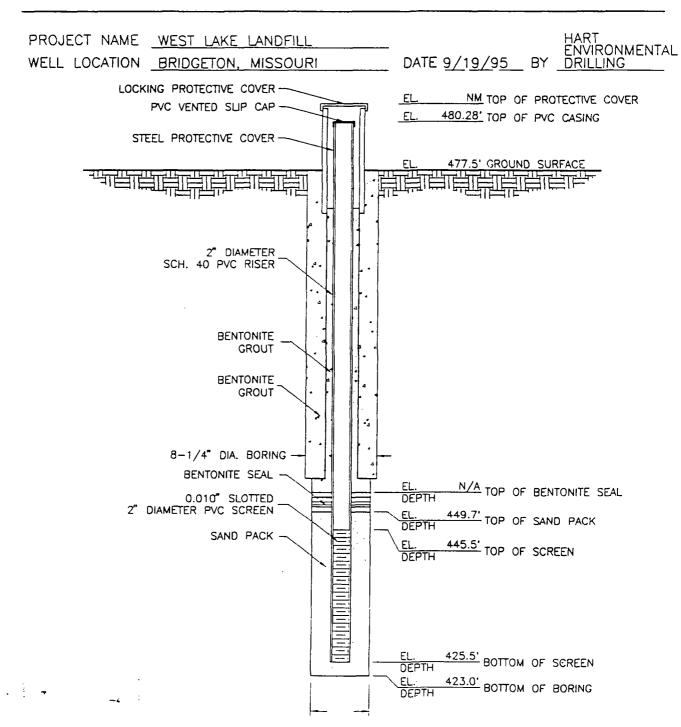


- 1. REFER TO SOIL BORING WL-228 FOR SOIL DESCRIPTION.
- 2. DETAIL NOT TO SCALE.
- 3. NM = NOT MEASURED.



PROJECT NO. <u>070803035</u> WELL NO.

S-10

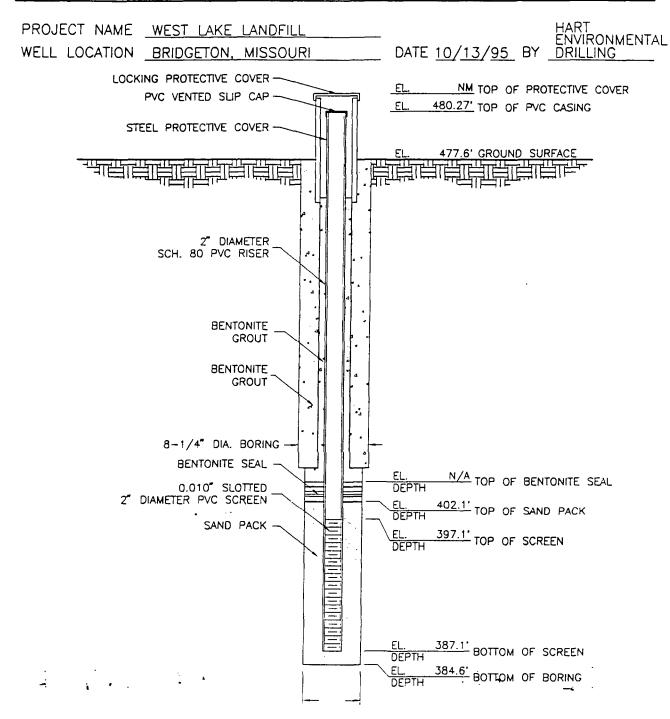


- 1 REFER TO SOIL BORING WL-216B FOR SOIL DESCRIPTION.
- 2. DETAIL NOT TO SCALE.
- 3. NM = NOT MEASURED.
- 4. N/A = NOT APPLICABLE; BENTONITE GROUT/CHIPS USED TO SEAL WELL UP TO SURFACE.



PROJECT NO. 070803035 WELL NO.

1 - 11

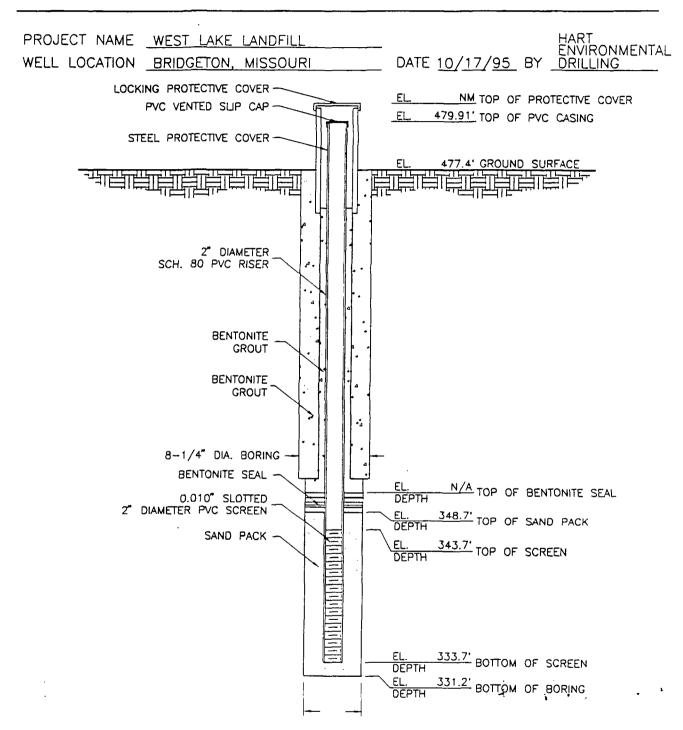


- 1. REFER TO SOIL BORING WL-216C FOR SOIL DESCRIPTION.
- 2. DETAIL NOT TO SCALE.
- 3. NM = NOT MEASURED.
- 4. N/A = NOT APPLICABLE; BENTONITE GROUT USED TO SEAL WELL UP TO SURFACE.



PROJECT NO. 070803035 WELL NO.

D - 12

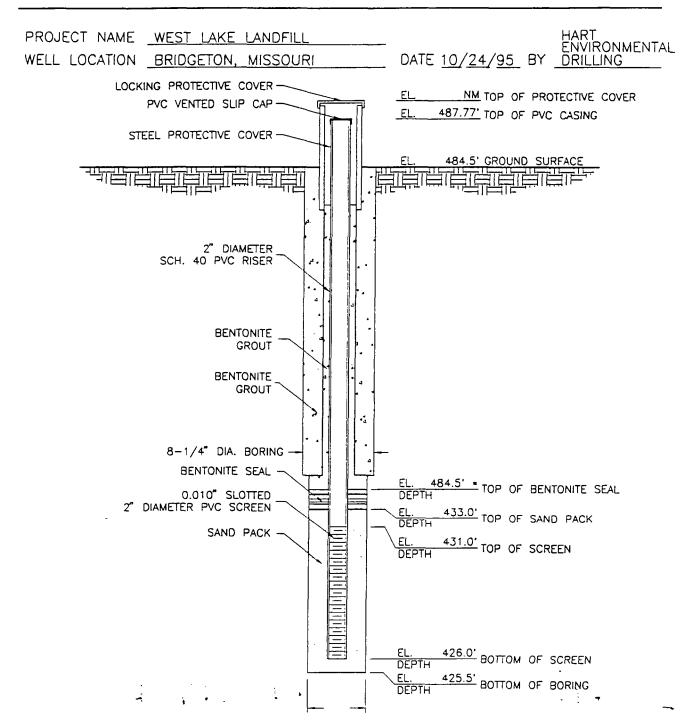


- 1. REFER TO SOIL BORING WL-216A FOR SOIL DESCRIPTION.
- 2. DETAIL NOT TO SCALE.
- 3. NM = NOT MEASURED.
- 4. N/A = NOT APPLICABLE; BENTONITE GROUT USED TO SEAL WELL UP TO SURFACE.



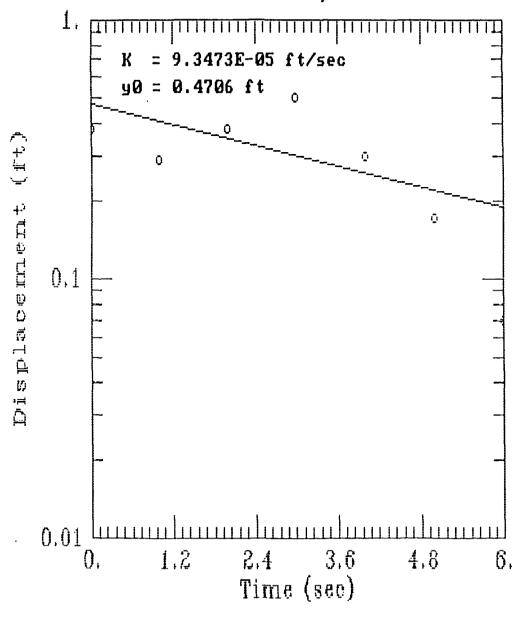
PROJECT NO. 070803035 WELL NO.

D-14

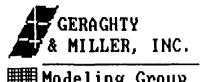


- 1. REFER TO SOIL BORING WL-109B FOR SOIL DESCRIPTION.
- 2. DETAIL NOT TO SCALE.
- 3. NM = NOT MEASURED.
- 4. = HYDRATED BENTONITE CHIPS USED TO SEAL WELL UP TO SURFACE.

S-8 SLUG TEST DATA W/TELOG RECORDER

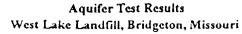


AQTESOLV



Modeling Group

Aquifer Testing Results



Monitoring Well	140°08-3011.001°08-30°08-30°08-30°02-2-50°09-09-30°08-30°08-30°08-30°08-30°08-30°08-30°08-30°08-30°08-30°08-30		
Shallow Depth Wells	The second with (Cibs) - 100 second s		
S-1	3.78E-03	-	
S-5	8.76E-04	Max	3.43E-02
S-8	3.43E-02	Min	8.76E-04
S-84	2.32E-03	Avg	8.22E-03
MW-101	4.17E-03		
MW-F3	3.83E-03		
Intermediate Depth We	eils	7	
I-2	3.27E-02	T	
I-4	5.41E-02	Max	6.68E-02
I-7	6.68E-02	Min	1.22E-02
I-9	5.47E-02	Avg	4.45E-02
I-11	4.63E-02		
I-68	1.22E-02		
Deep Depth Wells			
D-3	3.15E-02		
D-6	4.29E-02	Max	8.85E-02
D-12	4.14E-02	Min	4.50E-03
D-13	8.85E-02	Avg	4.28E-02
D-85	4.50E-03		
D-93	4.78E-02	1	

All Hydraulic Conductivities were determined using the computer software program AQTESOLV TM (Geraghty & Miller, Inc. 1989). A graph of the data points was assigned a best fit line that was visually positioned on the graph.

Equations for Determining Hydraulic Conductivity (K) using the Bouwer and Rice method

$$K = \frac{r_c^2 \ln\left(\frac{R_c}{r_w}\right)}{2L_c} \frac{1}{t} \ln \frac{y_o}{y_t}$$

where r_c = radius of well casing L_c = length of well screen

 $y_o = displacement at time 0$

y, = displacement at time t

$$\ln \frac{R_e}{r_w} = \left[\left(\frac{1.1}{\ln \frac{L_w}{r_w}} \right) + \left(\frac{A + B \ln \left[\frac{(H - L_w)}{r_w} \right]}{\frac{L_e}{r_w}} \right) \right]^{-1}$$

where $L_w = depth$ from potentiometric surface to bottom of well screen

 $r_{\rm w}$ = radial distance from center of well to native aquifer sediments

H = saturated thickness of the aquifer

A and B = constants taken from a plot in article entitled "the Bouwer and Rice Slug Test - An Update" by Herman Bouwer from <u>Ground Water May-June 1989 Vol. 27</u>, No. 3.

A semi-logarithmic plot of y and t with a best fit line drawn through the data will be plotted. The straight line drawn through the data will allow for selection of y_0 and y_t to be substituted into equation 1. See next page for this plot for well S-8. Note this is where the "double straight line effect" will skew the value of K if the wrong part of the double line is chosen.

The use of the Hermit Data recorder will allow for collection of data in more frequent steps and will allow for data to be taken at quicker intervals. This increase in data will help in the decision of which of the double lines is correct for the aquifer conditions.



DATE	TIME	MIN	AVG	MAX
12/12/95"	9:56:48	15.42	15.42	15.42
12/12/95"	9:56:49	14.96	14.96	14.96
12/12/95"	9:56:50	14.81	14.81	14.81
12/12/95*	9:56:51	14.96	14.96	14.96
12/12/95"	9:56:52	15.02	15.02	15.02
12/12/95"	9:56:53	15.33	15.33	15.33
12/12/95"	9:56:54	15.42	15.42	15.42
12/12/95"	9:56:55	15.39	15.39	15.39
12/12/95"	9:56:56	15.36	15.36	15.36
12/12/95"	9:56:57	15.37	15.37	15.37
12/12/95"	9:56:58	15.39	15.39	15.39

BOUWER AND RICE CALCUATION DATA

STATIC WATER LEVEL	13.02
SCREEN LENGTH	20'
TOP OF SCREEN DEPTH	6.3'
BOTTOM OF SCREEN DEPTH	26.3'
BOTTOM OF AQUIFER DEPTH	109'
WELL DIAMETER	2"
DIAMETER OF FILTER PACK	4.25"

ASSUMPTIONS

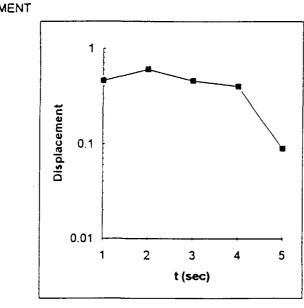
Filter pack sand was placed through the middle of the auger flites as the augers were pulled from the ground.

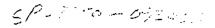
Assume the borehole collapsed around the filter pack (see boring logs for the lithology of the native material) therefore the radial distance from the center of the well to the normal conductivity of the aquifer is 2.125"

DATA USED IN PLOT

Notice the "double straight line effect" from time 2 to 4 seconds and again from 4 to 5 seconds. The data is too coarse to get the points in between these two intervals for correct best fit line interpretation. Without the best fit line, the correct value of K cannot be arrived at.

IME		DISPACEN
	1	0.46
	2	0.61
	3	0.46
	4	0.4
	5	0.09
	6	0
	7	0.03
	8	0.03
	9	0.02
	10	0







MISSOURI DEPARTMENT OF HEALTH

ROBERT HARMON, M.D. DIRECTOR

Areak:

May 13, 1987



WASTE MANAGEMENT

PROGRAM

Mr. Keith Schardein, Chief Superfund Section Waste Management Program Missouri Department of Natural Resources P.O. Box 176 Jefferson City, MO 65102

Dear Mr. Schardein Kt. L

Westlake Landfill Registry Site

Enclosed please find the documentation you requested about our source for contamination types and levels at the Westlake Landfill site. If you need more information concerning this site or have any other questions, please feel free to contact me at (314) 751-6102.

Énvironmental Specialist

Bureau of Environmental Epidemiology

GMC: vlh

enclosure

40241235

SUPERFUND RECORDS

DNR 0272

P. O. Box 570

Jefferson City, MO 65102

DOCUMENTATION RECORDS FOR RAZARD RANKING SYSTEM

INSTRUCTIONS: The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME:	Westlake Landfill	6	
•			-
LOCATION:	<u> </u>		

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

None

Rationale for attributing the contaminants to the facility:

* * *

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifers(s) of concern: '

shallow alluvium of Missouri River

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern:

approximately 60 ft.

Depth from the ground surface to the lowest point of waste disposal/ storage: approximately 35 feet

Net Pr itation

Hean annual or seasonal precipitation (list months for seasonal):

approximately 36"

Mean annual take or seasonal evaporation (list months for seasonal):

approximately 35"

Net precipitation (subtract the above figures):

+1"

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

silty sands over limestone

Permeability associated with soil type:

approximately 10 -3 to 10 -5 cm/sec.

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

liquid

* * 1

3 COM. AENT

Containment

Method(s) of waste or leachate containment evaluated:

Landfill; no liner; some ponding

Method with highest score:

above

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Chlordane TCE Toluene

Compound with highest score:

- Chlordane

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

4000 tons Pesticides 7000 tons Low-level uranium Undetermined amounts of waste solvents

Basis of estimating and/or computing waste quantity:

"Superfund Notifications" Interviews and Company records

5 TARG.

Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

Commercial with municipal water available

Distance to Nearest Well

Location of nearest well drawing from squifer of concern or occupied building not served by a public water supply:

Not used for drinking water

Distance to above well or building:

n/a

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aguifer(s) of concern within a 3-mile radius and populations served by each:

n/a

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

n/a

Total population served by ground water within a 3-mile radius:

None

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

None

Rationale for attributing the contaminants to the facility:

n/a

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2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

greater than 8% slope

Name/description of nearest downslope surface water:

Missouri River

Average slope of terrain between facility and above-cited surface water body in percent:

between 3 and 5% slope

Is the facility located either totally or partially in surface water?

No

Is the facility completely surrounded by areas of higher elevation?

No

1-Year 24-Hour Rainfall in Inches

between 2.5-30 inches

Distance to Nearest Downslope Surface Water

between 1 and 2 miles

Physical State of Waste

liquids

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Landfill, diversion system unsound

Method with highest score:

above

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

See groundwater

Compound with highest score:

see groundwater

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

see groundwater

Basis of estimating and/or computing waste quantity:

see groundwater

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Recreation

Is ther __idal influence?

No

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

n/a

Distance to 5-acre (minimum) fresh-water wetland, if I mile or less:

n/a

Distance to critical habitat of an endangered species or national wildlife refuge, if I mile or less:

n/a

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

None

Computation of land area irrigated by above-cited intake(s) conversion to population (1.5 people per acre):

n/a

Total population served:

None

Name/description of nearest of above water bodies:

Missouri River

Distance to above-cited intakes, measured in stream miles.

n/a

AIR ROUTE

1 OBSERVED RELEASE .
Contaminants detected:
None
Date and location of detection of contaminants
n/a
-
Methods used to detect the contaminants:
n/a
Rationale for attributing the contaminants to the site:
n/a

2 WASTE CHARACTERISTICS
Reactivity and Incompatibility
Most reactive compound:
n/a

Most incompatible pair of compounds:

n/a

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Toxici

Most toxic compound:

n/a

Hazardous Waste Quantity

Total quantity of hazardous waste:

n/a

Basis of estimating and/or computing waste quantity:

n/a

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi

0 to 1 mi

0 to 1/2 mi

0 to 1/4 mi

n/a

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

n/a

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

n/a

•	•
	•
Distance critical habitat of an	endangered species, if . we or
less:	•
n/a	-
•	
Land Use	
Distance to commercial/industrial a	rea, if I mile or less:
n/a	
Distance to national or state park, miles or less:	forest, or wildlife reserve, if 2
n/a	•
•	
	w
Distance to residential area, if 2	miles or less:
n/a	•
	•
Distance to agricultural land in pr mile or less:	oduction within past 5 years, if 1
n/a	•
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Distance to prime agricultural land 2 miles or less:	in production within past 5 years, if
n/a	

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

n/a

SEPA

POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT

4	SITE NUMBER 110 De BRAIS
	•4 b7 Hq)
111.	1475

GENERAL INSTRUCTIONS: Complete Sections I and III through XV of this form as completely as possible. Then use the information on this form to develop a Tentarive Disposition (Section II). File this form in its entirety in the regional Hazardous Waste Log File. Be sure to include all appropriate Supplemental Reports in the file. Submit a copy of the forms to: U.S. Environmental Protection Agency: Site Tracking System; Hazardous Waste Enforcement Tack Force (EN-335): 401 M St., SW: Washington, DC 20460.

tection Agency; Site Tracking Sys	tem; Hezerdous Waste Enforc	ement Tack For	C# (EM-333); 401	M St., SW; Was	Aington, DC 20460.
	. I. SITE IDE	HTIFICATION			
A. SITE NAME	/ /	B. STREET (~	Other (dentition)		-
WESTLAKE QUA	ery CHHOFILL	/C/-/	BOX 204	ל F. COUNTY אל	<u> </u>
1 0 .1 .		Mo	1 -		
G. SITE OPERATOR INFORMATION 1. NAME					
William CA				a. TELEPHON	
			. <u></u> -	3/90 /	39-1122
S. STREET RA. 1 Box 2	1. CITY	1ge ton		6. STATE	6. ziF cook
H. REALTY OWNER INFORMATION?	I dillerent from pooreror of site	ye TON		110	63042
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A PARTNE	LSHEP.		•	1 _	•
3. CITY RT.				4. STATE	39-1/22 -
Box 206	Bridgeton			Mo.	63042
I. SITE DESCRIPTION STATE APPROVE	15-16-0	- 1 T	\	. /	19.11.
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1. FEDERAL 2. STA	TE 🗀 3. COUNTY [] 4. MUNICIPAL	⊠ s. PRIVA	TE	
	II. TENTATIVE DISPOSIT	ON (complete th	is section last)		
A. ESTIMATE DATE OF TENTATIVE	B. APPARENT SERIOUSHE	SS OF PROBLEM	· · · · · · · · · · · · · · · · · · ·		
DISPOSITION (ma., dep, & ya.),	☐ 1. HIGH 5	2 MEDIUM	3. LOW		E
C. PREPARER INFORMATION	 	·			
1. MAME	•	1. TELEPHON		3. DATE (mon	
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<u> </u>	Щ. INSPECTION	DH INFORMATIO	М		
A. PRINCIPAL INSPECTOR INFORMA	(5/31/79)			TAL Speci	acist
HOWARD WINDU	CN (2/2/79)	EN	VIRANIMON		
B. OMGANIZATION					E NO.(eres sode & no.)
MO. DEPARTMEN	it of Natural	Kesouke	کے	3/4 8	49-1313
B. INSPECTION PARTICIPANTS	<u>,</u>		<u> </u>	, .	
1. NAME	2. 086	ANIZATION		3. TEL	EPHONE NO.
SAME AS Oborc.					v -
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C. SITE REPRESENTATIVES INTER	/IEWED (corporate officials, we	rkers, residents)		<u> </u>	-
1. NAME	1. TITLE & TELEPHONE A			ADDRESS	· · · · · · · · · · · · · · · · · · ·
	Site OPERATOR	Rt.	1 Box	206	
Me William Carry	314 739-1122	BR	idge for	Mo. 63	1042
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} 	<u> </u>	 -			
					
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Continued From Front		· · · · · · · · · · · · · · · · · · ·			-
	<u>III.</u>	INSPECTION INFORMATION (con	nttnue=)		•
D. GENERATOR IN TI	ION (sources of waste)				
1. NAME	1 2. TELEPHONE A			4. WASTE TYPE GENE	
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Chereau Chraicaí Ca	1 7/4 A 2 4 67	2497 Adie K		Insecticides	1 HEL
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Phizek, INC.	618-271-480	DO Now YORK N.	w York 10019	WASTEWATER	میسترکند : تک او اسداد
E. TRANSPORTER/HAULER	INFORMATION		<u>-</u>		
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G. DATE OF INSPECTION	TIME OF INCOM	CTION I. ACCESS GAINED BY: (CAN	Anna de la compania de	n all cases	
(mail day, h. etc.) 2/2/75	9	•			
T/8//7	7	E IL PERMISSION	2. WARRANT		
5/30/7					
J. WEATHER (describe)	·····				
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J. WEATHER (describe)		IV. SAMPLING INFORMATION		· · · · · · · · · · · · · · · · · · ·	
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J. WEATHER (describe)	f samples taken and the results will be a	indicate where they have been see			
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2. Estimate the amor	•	L dA									e which	1 200 7	present.	
A. SLUDGE	b. OIL			VENT		1	4. CHE			<u> </u>	4. SOL:05		f. OTH	£R
MOUNT	AMOUNT	1	UNT			144	OUNT			4.	HOUNT		AMOUNT	
•	Us Knew &	- - '	-				400	0			2100		UNKM	. بدیده
UNIT OF MEASURE	SRUEASM TO TINU	UHI	TOF	MEAS	JAE	1	17 OF N		R E	٠.	HIT OF MEAS	URE	UNIT OF ME	ASURE
	<u> </u>				_	1 :	40N 3	<u> </u>		L	tons	_	WKNOC	ga/
PAINT,	X OILY	· []	1, HAL 90L	OGEN VENT	ATED		11) 4010	5		<u> </u>	(I) FLYASH		IT, LABOR	ATORY.
(2) METALS SLUDGES	X 121 OTHER (SPOCIS	"X	2) HON	-MALC	96NTD		(2) P(C)	LING			(2) ASBESTO	:	(21 HOSP1	TAL
(3) POTW	Int. Studge	—) O T F	t€ M (ap	ocify):		(B) CAU	STICS		X	SLUDGE	MINE	X (Zow	
141 SLUDGE						X	(4) PES1	TICIDE	.5		14) FERROUS	SMELT	(4) MUNIC	
(8) OTHER (specify):							(S) DYE	S/INKS			(S) NON-FER	ROUS ASTES	(\$) OTHE	R(apacity)
•	<u>.</u>					П	(6) CYA	HIDE		F	(8) OTHER(9)	poetfy):	WASTE	Occ
	:					П	(7) #HE	NO LS				011	COTTER	25 +
						X	(8) HAL	OGEN!	7,				Residua Cotter Lapoie St. Low	Ann
							(#) FC B		7713				34. Los	is, 1776
						H		-						
						X	(10) ME	TALE						
]		•				(11)OT	HER(#	ecity)	1			**	
						1				ĺ				
LIST SUBSTANCES	OF GREATEST CONC	FRN WH	IICH A	RF DI	N THE	SITE	(place	m dee	endini		rder of hazard)		<u> </u>	<u> </u>
		2.1	FORM				ICITY							7
1.508574	NCE	(ma 1.30-i	** 'X') c. V A-		b.	('X')	1 a.	4.0	AS	NUMBER	5.7	THUOM	6. UNIT
	·		L 10.				LOW						.=	
esticides-Hun	ebicide Reside	× ک			Un	تديو	مدمد					4	700	حسما
lowlever Roc		X			U	Kal	مدين				· ·		?	tous
•														
				:										
		<u> </u>												
	· · · · · · · · · · · · · · · · · · ·		VI	I. HA	ZARD	DES	CRIPT	10H		_				
FIELD EVALUATION	HAZARD DESCRI	PTION:							te the	t U	ne listed haz	ard exis	ts. Describ	e the
ezard in the space p														
A. HUMAN HEAL	TH HAZARDS													
		•												

Continued From Pag							
	IV.	SAMPLING INFOR	RMA	TION (continued)	_		
C. PHOTOS							
2. PHOTOS IN CUSTODY OF:							
I . GROUND Drb. AERIAL Mo. DNR- See ENGINEERING PLANS							
C. SITE MAPPED!					_		
X YES, SPECIFY LOCATION	N OF MAPS!						
E. COORDINATES	· -	•					
1			4	. J.CHAITHOE (deg., min., etc.)			
Sec. 13/ 7	47N P	رر ہیجہ ہے۔	1.	is County			
- Jack. 157	//// /	V CITEINE	***	VATION .			
A. SITE STATUS		V. 31) E IMF	UK.	MATION			
		ACTIVE (Those	t			•	
1. ACTIVE (Those inductrie municipal sites which are being		ich no longer receive		3. OTHER(specify):	ide	nte like "midnight dumping"	
for weare treatment, storage, or		_	1	where no regular or continuing use	of	the site for waste disposal	
on a continuing bests, even if in guently.)		•	ı	has occurred.)			
	<u> </u>		<u> </u>				
B. IS GENERATOR ON SITE!							
₹ 31. HO □ 2. YES(specify denotator's	tour-digit SIC Code).	_				
!							
C. AREA OF SITE (in acres)		THERE BUILDINGS					
Site 1- 25 Ac		но 🔯 2. YES	ap+	elly): Qually Builds	بزي	es for Plant	
Sire 2 - 13 Ac	روح	_					
<u> </u>	VT C	HARACTERIZATIO	Jи	OF SITE ACTIVITY			
Indicate the major site activity				ity by marking 'X' in the appro	Dfi	ate boxes.	
144	lx:		lx.	1	lx'		
A. TRANSPORTER	 	. STORER	-	C. TREATER	H	D. DISPOSER	
1. BAIL	1. PILE		╁	I. FILTRATION	X	1-LANDFILL	
Z. SHIP	2.SURFACE	E IMPOUNDMENT	T	2. INCINERATION	f ·	2. LANDFARM	
J. BARGE	3. DRUMS	 -	1	S. VOLUME REDUCTION		1. OPEN DUMP	
A. THUCK		BOYE GROUND	┰	4.RECYCLING/RECOVERY	┼-	A. SURFACE IMPOUNDMENT	
S. PIPELINE		ELOW GROUND	┿	S. CHEM/PHYS./TREATMENT	╀	S. MIDNIGHT DUMPING	
S.OTHER(specify):	S. OTHER		┿	4. BIOLOGICAL TREATMENT	╁	6. INCINERATION	
Paro mangapotings	-10.0	,p-0.177.	\vdash	7. WASTE OIL REPROCESSING	╄	7. UNDERGROUND INJECTION	
i .	1		-	S. SOLVENT RECOVERY	╄	S.OTHER(specify):	
· I			\vdash		⊬	S. O THER(Specify):	
į.	ì		1	B. OTHER (specify):	1		
1			1		Ĺ		
	1		ŀ		ļ		
ļ.			1	-	1	•	
	<u> </u>		L		L		
E. SUPPLEMENTAL REPORTS:				a listed below, Supplemental Repor	rte i	must be completed. Indicate	
Airen Ambiamader valous les					_		
🔲 1. STORAGE] 2. INCIHERATIO	IN - 🔀 3. LANDFII	LL	A SURFACE	5.	DEEP WELL	
<u> </u>	_			<u></u>			
6- PHYS TREATMENT	7. LANDFARM	B. OPEN D	UMI	P 3. TRANSPORTER) 10	D. RECYCLOR/RECLAIMER	
	7	TL WASTE RELAT	EC	INFORMATION			
A. WASTE TYPE	·	<u> </u>			_		
T, Liquio 😕	2. SOLID	🔀 3. SLUDGE	:	☐ 4. GAS			
	<u> </u>			-			
B. WASTE CHARACTERISTICS		 .			_		
	2. IGNITABLE	5 7 04004	~=.	VE 🗀 4. HIGHLY VOLATILE			
			_ ri	=			
S. TOXIC	6. REACTIVE	7. INERT		L B. FLAMMABLE			
<u> </u>							
9. OTHER (apacity):	 _						
C. WASTE CATEGORIES 1. Are records of waster available	le? Specify items	such se manifests, in	ven	torive, etc. below.			
Ť				•			
1		•					

	VIII. HAZARD DES	CRIPTION (continued)		
T. MIDNIGHT DUMPING				<u>-</u>
	, •			
				٠
	- 			
U. OTHER (opecity):				
				-
, ,		•		
			•	
2	·	• = %• · · · · · ·	- ••	
·-·	•	* * * * * * * * * * * * * * * * * * * *		
	IX. POPULATION DIREC	TLY AFFECTED BY SITE		
ALLOCATION OF POPULATION	B. APPROX, NO. OF PEOPLE AFFECTED	C. APPROX. NO. OF PEOPLE AFFECTED WITHIN UNIT AREA	D. APPROX. NO. OF BUILDINGS AFFECTED	E. DISTANCE TO SITE (epecify unite)
S.IH RESIDENTIAL AREAS	1 occupied Resid	lance the co	and I am have I	
IN COMMERCIAL OR INDUSTRIAL AREAS	- Jaco Resi		YIOZZZZ	
			,	<u> </u>
3. TRAVELLED AREAS NEAR	Interstate 70	(4000 1)		
4 PUBLIC USE AMEAS (parks, schools, sic.)				
A. DEPTH TO GROUNDWATER(speci	X. WATER AN	D HYDROLOGICAL DATA	ROUNDWATER USE IN	VICINITY
	Velen Westward	to River		
D. POTENTIAL YIELD OF AQUIFER	(epocity unit of mos		LEST	G WATER SUPPLY
G. TYPE OF DRINKING WATER SUP	PLY	<u> </u>		
1. NON-COMMUNITY C	2. COMMUNITY (apocity town): > 15 CONNECTIONS		<u>-</u>	
🔀 1. SURFACE WATER 🔲	4. WELL		•	

Continued From	PARE :							
<u> </u>			X. WATER AND HYDROLOGI	CAL DATA	(c	ontinued)		
H. LIST ALL DAT	NKING WATE	R WELL	S WITHIN A 1/4 MILE MADIUS OF ST	TE			-	-
I. WELL	2. DEPT), Le (prozimity to po	DCATION pulation/ bul	lan	120)	NON-COM- MUNITY (mark 'X')	COMMUN- ITY (mark 'X')
	Sec	/	issouri Geologica	مرکک رو	. در و د	en Ella Da		
<u> </u>	1		1			V 1014 140.	† 	
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						 · · · _ · · · _ · · · · · · · · 	† 	
Į	Į.	- 1					1	ì
I. RECEIVING WA	TER					· · · · · · · · · · · · · · · · · · ·		1 · · · · · · · · · · · · · · · · · ·
1. MAME	•	• 1	🗀 2. SEWERS 💆	3. STREA	MS,	RIVERS		
Missou	۲,	1						
Pir	LR.	- 1	4. LAKES/RESERVOIRS] 8. OTHER	()	oecity):		
6. SPECIFY USE	THO CEASE	FICATIO	N OF RECEIVING WATERS		•			
1								
ĺ								
} ·								
			XI. SOIL AND VEGIT	ATION DA	TΑ			
LOCATION OF SI	TE IS IN:	-	···	m	11	AND LINE ANDVILOR	Ţ.	
A. KNOWN	FAULT ZONE	•	🔲 B. KARST ZONE	∑ c. 140	٧.	ARELOOD BLAN	D. WETLAN	Þ
ŀ								
🔲 E. A REGUL	LATED FLOO	DWAY	F. CRITICAL HABITAT	C. REC	CH/	RGE ZONE OR SOLE SOUR	CE AQUIFER	:
			XII. TYPE OF GEOLOGICAL A	ATERIAL	OE	SERVED		
Mark 'X' to indic	cate the type	e(s) of g	eological material observed and a	pecify whe		necessary, the component	parts.	
A. CVERBUT	HDEN 'X		B. BEDROCK (specify below)		×	C. OTHER (spe	city below)	
X 1. 3AND - 5/	LT (66)				×	GROUN dwater	@ 20-	-
					┪	or Ahn' do-		
X 2. CLAY (M)	ist)					The treation		
3. GRAVEL	j	1		1	1			
		_	XIII. SOIL PERM	EABILITY				
	<u> </u>					-		
A. UNKNOWN	1		B. YERY HIGH (100,000 to 14	000 cm/++c+)	•	C. HIGH (1000 to 10 c	m/aec.)	
D. MODERAT		m/eec.)	E +0# (.1 10 .001 cm/ s+c.)			F. VERY LOW (.001 K	.00 0 01 cm /*	•c.)
G. RECHARGE AF	REX							
🔀 I. YES	2. NO	3, CO	MMENTS:					
H. DISCHARGE A	REA			•				
. T. YES	2, HO	3. CD	MMENTS:					
I. SLOPE			CCIFY DIRECTION OF \$LOPE, CON					
50 /	F SLOPE	2. # 2		SITION OF	36	DPE, ETC.		
12,000			JEST WAR &					
J. OTHER GEOLO	GICAL DATA						-	
								-
							•	
						•		•:
						•		

Continued From Fro		XIV. PERMIT IN	FORMATION			-	
List all applicable pensits	neld by the site and						
			· - · · · - · · · ·	E. EXPIRATION		COMPL	
A. PERMIT TYPE (o.g.,RCRA, Stato,NPDES, etc.)	B. ISSUING AGENCY	C. PERMIT Humber	D. DATE ISSUED (mo.dey.a.gr.)	DATE (ma.dey.&pr.)	1.	2.) 3. UN-
State (25 Acres	Do. Dir.	118903 218903	8/27/74				
State (13 Acres	Mo. ONR	118906	1/22/79	NA			
		<u> </u>					
	XV. PAST	REGULATORY OR I	ENFORCEMENT AC	TIONS		<u> </u>	
• 	A Secretary Control of the Control o				· ·		
	en en en en en en en en en en en en en e	•					

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EPA Form T2070-3 (10-79)

LANDFILLS SITE INSPECTION REPORT (Supplemental Report)	INSTRUCTION Asswer and Explain as Necessary.
1. EVIDENCE OF SITE INSTABILITY (Erosion, Setting, Sink Holes, etc)	•
2. EVIDENCE OF IMPROPER DISPOSAL OF BULK LIQUIDS, SEMI-SOLIDS AND SLUDGES INTO THE LANDFIL	LL
₹ ves □ No " "	
3. CHECK RECORDS OF CELL LOCATION AND CONTENTS AND BENCHMARK	·
☐ YE\$ ② NO	
4. WASTES SURROUNDED BY SORBENT MATERIAL	
S. DIVERSION STRUCTURES ARE EFFECTIVELY CONSTRUCTED AND PROPERLY MAINTAINED	
THE NO	
6. EVIDENCE OF PONDING OF WATER ON SITE	
₹	
7. EVIDENCE OF IMPROPER/INADEQUATE DRAINING	
B ves □ no	<u> </u>
8. ADEQUATE LEACHATE COLLECTION SYSTEM (II "Yes", specity Type) THE THE TOTAL	
BE, SURFACE LEACHATE SPRING	
STYES IND WEST WALL OF QUARRY	
9. RECORDS OF LEACHATE ANALYSIS	
₩ YE3 □ NO "OME"	
10. GAS MONITORING DS YES □ NO	
11. GROUNDWATER MONITORING WELLS	
BYES DINO Total of Mine.	
12. ARTIFICIAL MEMBRANE LINER INSTALLED	
□ YES 23 NO	
13. SPECIFIC CONTAINMENT MEASURES (Clay Battom, Sides, etc)	
BYES NO CLAY PAD (24" Compacted)	
TYES SHO	•
15. ADEQUATE CLOSURE OF INACTIVE PORTION OF FACILITY	
□ YES 🔯 NO	-
16. COVER(Type)	
Daily 6 clay cover plus 24 inches line L.	cover over
filled areas.	
16a. THICKNESS	,
165. PERMEABILITY	_
LINKNOW	
15. DAILY ARRIVATION	
DIES DAILY APPLICATION SANITORY / LANdfill ONCE per week for demolition of	
Over one week to benefiting	A.))
The second por services of	

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